

GOAL 4: Healthy Communities and Ecosystems

STRATEGIC GOAL: Protect, sustain, or restore the health of people, communities, and ecosystems using integrated and comprehensive approaches and partnerships.

BACKGROUND AND CONTEXT

To promote healthy communities and ecosystems, EPA must bring together a variety of programs, tools, approaches and resources. The support of a multitude of stakeholders, along with strong partnerships with Federal, State, Tribal and local governments, are necessary to achieve the Agency's goal of protecting, sustaining or restoring healthy communities and ecosystems. The Agency's goal of achieving healthy communities and ecosystems will be accomplished by focusing both on stressors to human health and the environment and the locations at most risk from environmental problems.

A key component of this goal is protecting human health and the environment by identifying, assessing, and reducing the potential risks presented by the thousands of chemicals on which our society and economy have come to depend. These include the pesticides we use to meet national and global demands for food, and the industrial and commercial chemicals found throughout our homes, our workplaces, and the products we use.

Some pest-control methods that are used to ensure an abundant and affordable food supply can cause unwanted environmental or health effects if not used and managed properly. Apart from its role in agriculture, effective pest control is also essential in homes, gardens, rights-of-ways, hospitals, and drinking water treatment facilities. Pesticides are an important part of pest management in each of these settings. EPA licenses pesticides to help ensure they can be used safely and beneficially while avoiding unintended harm to our health or environment. EPA must also address the emerging challenges posed by a growing array of biological organisms—naturally occurring and, increasingly, genetically engineered—that are being used in industrial and agricultural processes.

Agriculture accounts for about 80 percent of all conventional pesticide applications. Herbicides are the most widely used pesticides and account for the greatest expenditure and volume, approximately

\$6.4 billion and 534 million pounds in 1999. Biopesticides and reduced risk pesticides are assuming an increasingly important role. For example, safer pesticides, which include biopesticides and reduced risk pesticides, increased in use from 3.6 percent in 1998 to 7.5 percent of total pounds reported for 2002.

Biological agents are potential weapons that could be exploited by terrorists against the United States. EPA's pesticides antimicrobial program has been very responsive to addressing this threat. Antimicrobials play an important role in public health and safety. EPA is conducting comprehensive scientific assessments and developing test protocols to determine product safety and efficacy of products used against chemical and biological weapons of mass destruction, and registering products as necessary. EPA is also developing a timeline for prioritizing and implementing the tests.

EPA programs under this Goal have many indirect effects that significantly augment the stream of benefits they provide. For example, each year the Toxic Substances Control Act (TSCA) New Chemicals program reviews and manages the potential risks from approximately 1,800 new chemicals and 40 products of biotechnology that enter the marketplace. Since its inception, approximately 17,000 new chemicals reviewed by the program have entered United States commerce. This new chemical review process not only protects the public from the possible immediate threats of harmful chemicals like polychlorinated biphenyls (PCBs) from entering the marketplace, but it has also contributed to changing the behavior of the chemical industry, making industry more aware and responsible for the impact these chemicals have on human health and the environment.

Americans come into daily contact with any number of chemicals that entered the market before the New Chemicals Program was established in 1978, yet relatively little is known about many of their

potential impacts. Getting basic hazard testing information on large volume chemicals is one focus

of EPA's work in the Existing Chemicals program. The voluntary High Production Volume program challenges industry to develop chemical hazard data critical to enabling EPA, State, Tribes, and the public to screen chemicals already in commerce for any risks they may be posing. Risks of other chemicals, such as lead or PCBs are well known, and EPA's responsibility centers on reducing exposure through proper handling or disposal.

The Acute Exposure Guideline Levels (AEGLs) Program was designed by EPA to provide scientifically credible data to directly support chemical emergency planning, response, and prevention programs mandated by Congress. Emergency workers and first responders need to know how dangerous a chemical contaminant may be to breathe or touch, and how long it may remain dangerous. The program develops short-term exposure limits applicable to the general population for a wide range of extremely hazardous substances (approximately 400) for purposes related to chemical terrorism and chemical accidents.

In addition to addressing human health and ecosystems and stressors such as chemicals and pesticides, this goal also focuses on those geographic areas with human and ecological communities at most risk. For example the Mexican Border is an area facing unique environmental challenges. At the Mexican Border, EPA addresses local pollution and infrastructure needs that are priorities for the Mexican and the U.S. governments under the Border 2012 agreement.

As the population in coastal regions grows the challenges to preserve and protect these important ecosystems increase. Through the National Estuary Program, coastal areas have proved valuable grounds for combining innovative and community-based approaches with national guidelines and inter-agency coordination to achieve results.

Wetlands are among the most productive ecosystems in the world, comparable to rain forests and coral reefs. Yet the nation loses an estimated 58,000 acres per year, and existing wetlands may be degraded by excessive sedimentation, nutrient enrichment, and other factors.¹

¹ Dahl, T.E. 1990. *Status and Trends of Wetlands in the Conterminous United States, 1986 to 1997*. Washington, DC: U.S. Department of the Interior, U.S. Fish and Wildlife Service. Available online at:

In 2001 the Supreme Court determined that some isolated waters and wetlands are not regulated under the Clean Water Act. Many waters with important aquatic values may no longer be covered by CWA Section 404 protections.

Large water bodies like the Gulf of Mexico, the Great Lakes, and the Chesapeake Bay are surrounded by industrial and other development and have been exposed to substantial pollution over many years at levels higher than current environmental standards permit. As a result, the volume of pollutants in these water bodies has exceeded their natural ability to restore balance. Working with stakeholders, EPA has established special programs to protect and restore these unique resources by addressing the vulnerabilities for each.

EPA's continued enforcement efforts will be strengthened through the development of measures to assess the impact of enforcement activities and assist in targeting areas that pose the greatest risks to human health and the environment, display patterns of noncompliance, and include disproportionately exposed populations. In addition, the EPA's enforcement program supports Environmental Justice effort by focusing enforcement actions and criminal investigations on industries that have repeatedly violated environmental laws in minority and/or low-income areas.

Further, EPA's Brownfields Initiative funds pilot programs and other research efforts; clarifies liability issues; enters into Federal, state and local partnerships; conducts outreach activities; and creates job training and workforce development programs.

EPA's environmental justice program will continue education, outreach, and data availability initiatives. The Program provides a central point for the Agency to address environmental and human health concerns in minority and/or low-income communities--a segment of the population that has been disproportionately exposed to environmental harms and risks. The program will continue to manage the Agency's Environmental Justice Community Small Grants Program that assists community-based organizations working to develop solutions to local environmental issues.

The Agency will continue to support the National Environmental Justice Advisory Council

<http://wetlands.fws.gov/bha/SandT/SandTReport.html>: Report to Congress on the Status and Trends of Wetlands in the Conterminous United States, 1986 to 1997.

(NEJAC) which provides the Agency significant input from interested stakeholders such as community-based organizations, business and industry, academic institutions, state, Tribal and local governments, non-governmental organizations and environmental groups. The Agency will also continue to chair an Interagency Working Group (IWG) consisting of eleven departments and agencies, as well as representatives of various White House offices, to ensure that environmental justice concerns are incorporated into all Federal programs.

Research

EPA has a responsibility to ensure that efforts to reduce potential environmental risks are based on the best available scientific information. Strong science allows identification of the most important sources of risk to human health and the environment as well as the best means to detect, abate, and avoid possible environmental problems, and thereby guides our priorities, policies, and deployment of resources. It is critical that research and scientific assessment be integrated with EPA's policy and regulatory activities. In order to address complex issues in the future, the Agency will design and test fundamentally new tools and management approaches that have potential for achieving environmental results. Under Goal 4, EPA will conduct research in many areas, including emerging areas such as biotechnology and computational toxicology, to help develop better understandings and characterizations of positive environmental outcomes related to healthy communities and ecosystems.

EPA uses several noteworthy mechanisms to ensure scientific relevance, quality, and integration as it seeks to produce sound environmental results. For example, EPA's Science Advisor is responsible for advising the EPA Administrator on science and technology issues to support Agency programs, policies, procedures, and decisions. Also, EPA uses its Science Advisory Board (SAB), an independently chartered Federal Advisory Committee Act committee, to conduct annual, in-depth reviews and analyses of EPA's Science and Technology account. The SAB provides its findings to the House Science Committee and reports findings to EPA's Administrator after every annual review. Under the Science to Achieve Results (STAR) program, all research projects are selected for funding through a rigorous, competitive, and external peer review process designed to ensure that only the highest quality efforts receive funding support. All EPA scientific and technical work products must undergo either internal or external peer review, with major or significant products requiring external peer review.

The Agency also uses a Peer Review Handbook (2nd Edition) which codifies procedures and guidance for conducting quality EPA peer reviews. Taken together, these mechanisms serve to ensure EPA's research and science remains relevant and committed to achieving superior environmental results.

MEANS AND STRATEGY

In coordination with our State and Tribal co-regulators and co-implementers and with the support of industry, environmental groups, and other stakeholders, EPA will use multiple approaches to address risks associated with chemicals and pesticides. Improving communities' ability to address local problems is a critical part of our efforts to reduce risk.

The Agency's strategy for reducing the risks of exposures to pesticides and industrial chemicals is based on:

- Identifying and assessing potential risks from chemicals, pesticides, and microorganisms;
- Setting priorities for addressing these risks;
- Developing and implementing strategies aimed at preventing risks and managing those risks that cannot be prevented;
- Implementing regulatory measures, such as systematic review of pesticides and new chemicals, and developing and implementing procedures for safe production, use, storage, and handling of chemicals, pesticides, and microorganisms;
- Employing innovative voluntary measures, such as promoting the use of reduced-risk pesticides and challenging companies to assess and reduce chemical risks and develop safer and less polluting new chemicals, processes, and technologies; and
- Conducting outreach and training, and establishing partnerships.

Pesticides Management

EPA has the responsibility under Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and the Federal Food and Drug Cosmetic Act (FFDCA) to set terms and conditions of pesticide registration, marketing and use. EPA will use these authorities to reduce risk from residues of pesticides, particularly those pesticides with the highest potential to cause harm to human health and the environment, including those which pose particular risks to children and other susceptible populations. All new

pesticides are reviewed for registration through an extensive review and evaluation of human health and ecosystem studies and data, applying the most recent scientific advances in risk assessment. The Registration program includes registration activities, such as setting tolerances, registering new active ingredients and new uses, and handling experimental use permits and emergency exemptions.

New registration actions result in more pesticides on the market that meet the strict Food Quality Protection Act (FQPA) pesticide risk-based standards, which brings the Agency closer to the objective of reducing adverse risks from pesticide use. In 2005, the Agency will continue to promote accelerated registrations for pesticides that provide improved risk reduction or risk prevention compared to those currently on the market. Progressively replacing older, higher-risk pesticides is one of the most effective methods for curtailing adverse impact on health and the ecosystem while preserving food quality and production rates. EPA measures adoption of the reduced-risk pesticides by tracking the amount of acres treated --- or "acre treatments" --- using reduced risk pesticides. By 2005, an estimated 8.7 percent of total acre-treatments are expected to use reduced-risk pesticides.

Another priority is to review older pesticides in applying the FQPA safety standards. We will complete pesticide reregistration eligibility decisions by 2008 (food use by 2006) and, in tandem with that work, meet our FQPA statutory goal of reassessing 9,721 existing tolerances by August 2006. The Strategic Agricultural Partnership Initiative and the Pesticide Environmental Stewardship Program collaborate with USDA, States, and non-governmental organizations to demonstrate integrated pest management strategies that reduce pesticide residues in the environment.

Pesticide and pest control issues extend beyond the farm. Public health officials and homeowners use pesticides to control a variety of pests, protect human health, and benefit consumers. Through our regulatory programs, EPA reviews all pesticides with the goal of minimizing pesticide exposure and risk. For example, as of 2002, children's exposure to organophosphates -- an older, riskier class of pesticide -- was reduced by 60 percent through the elimination of many uses in and around the house. EPA registers antimicrobials used by public drinking water treatment facilities and by food processing plants and hospitals to disinfect surfaces. Effective antimicrobials are of growing importance as many serious disease-causing organisms become resistant to our antibiotic procedures. To provide environmental, public health, and economic benefits,

we will continue addressing risk from older pesticides, making new pesticides available and addressing emergency health or pest damage issues flexibly and efficiently.

Biotechnology has presented the Agency with a range of new issues and scientific challenges as well. Outreach activities on the subject of biotechnology such as public meetings and scientific peer reviews of our policies and assessments are likely to be expanded to keep pace with changing science and the public's demand for information in this area. EPA is working closely with other Federal agencies involved in biotechnology. Adoption of biotechnology has great potential to reduce reliance on some older, more risky chemical pesticides, and to lower worker risks. For example, the use of Bt cotton has reduced the use of other insecticides that present higher risk to wildlife.

Toxic Chemicals

Three primary approaches comprise EPA's strategy to prevent and reduce risks that may be posed by chemicals and microorganisms:

- Preventing the introduction into U.S. commerce of chemicals and organisms that pose unreasonable risks;
- Effectively screening the stock of chemicals already in use for potential risk; and
- Developing and implementing action plans to reduce use of and exposure to chemicals that have been demonstrated to harm humans and the environment.

EPA intends to work with States and Tribes, other Federal agencies, the private sector, and international entities to implement this strategy and, in particular, to make protecting children and the aging population a fundamental goal of public health and environmental protection.

TSCA requires that EPA review all new chemicals and organisms prior to their production or import and be notified of significant new uses for certain chemicals that have already been reviewed.² While TSCA gives EPA a 90-day review period, new criteria, such as preventing the introduction of persistent bioaccumulative toxics (PBTs) or considering the use of new chemicals as potential weapons of terror, continue to emerge. An expanded set of screening tools will increase EPA's and

² Toxic Substances Control Act Section 5: Manufacturing and Processing Notices, Public Law 94-469, October 11, 1976

industry's efficiency by using the limited data that companies provide in their Pre-manufacturing Notice (PMN) submissions to predict potential hazards, exposures, and risks quickly and effectively.

In 2005, EPA will continue to make progress in screening, assessing, and reducing risks posed by the 66,600 chemicals that were in use prior to the enactment of TSCA. Thousands of these chemicals are still used today, and nearly 3,000 of them are "high production volume" (HPV) chemicals, produced or imported in quantities exceeding one million pounds per year. Approximately 300 companies and 100 consortia are voluntarily providing data covering over 2,200 of the more than 2,800 chemicals included in the HPV Challenge Program.³ EPA will make the data publicly available and screen for potential hazards and risks. We will then identify and set priorities for further assessment, and determine the need to take action to eliminate or effectively manage the risks identified. To support these efforts, we will draw on data already obtained through the TSCA Inventory Update Rule⁴, particularly on new exposure-related data to be provided beginning in 2005.

In certain instances, risk-reduction efforts are targeted at specific chemicals. Foremost among these is the Federal government's commitment to eliminate the incidence of childhood lead poisoning. Since 1973, we have reduced environmental lead levels by phasing out leaded gasoline and addressing other sources of lead exposure. Since the 1990's, EPA has focused on reducing children's exposure to lead in paint and dust through a regulatory framework and by educating parents and the medical community about prevention.⁵ EPA's efforts, combined with those of other Federal agencies, has led to a 50 percent drop in the number of children in the U.S. that have elevated blood levels, to approximately 400,000 children.

EPA is employing a multimedia, cross-Agency strategy to focus on other high-risk chemicals and classes of chemicals. For example, we are working to prevent new PBTs from entering commerce and to reduce risks associated with PBTs, including mercury, that are currently in use or that have been used in the past. In addition,

recommendations will be provided to EPA in 2004 from a panel of national experts on asbestos that will assist the Agency in designing strategies to address remaining asbestos risks. We will expand successful pilots to encourage companies to retire from service large capacitors and transformers containing PCBs to meet ambitious new targets for safe disposal by 2008.

U.S./Mexican Border

To reduce environmental and human health risks along the U.S./Mexico Border, EPA employs both voluntary and regulatory measures. Efforts include a series of workgroups that focus on priority issues ranging from water infrastructure and hazardous waste to outreach efforts focusing on communities and businesses in the border area. The programs were initially conceived in a Federal-to-Federal context. Today, it is clear that in both countries, non-Federal governments are the appropriate entities for developing and carrying out much of the work of protecting the border environment. The experience of the last six years has shown U.S. border states as key participants in workgroup activities with similar experience on the Mexico side.

In the past year, all border states have stressed the need for greater decentralization of environmental authority, and in FY 1999, states and the Federal governments agreed to a set of principles that clarify the roles of the governments and advance State and Tribal participation. Under a new environmental plan developed with SEMARNAP (EPA's Mexican counterpart), completed in April 2003, the States and Tribes will play a more substantial and meaningful role in:

- determining how Federal border programs are developed and funded;
- developing regional workgroups that empower border citizens; and
- ensuring that programs devolve from Mexico's Federal government to the Mexican states, with corresponding funding.

Ecosystems

EPA will work with Federal, state, Tribal, local, and private sector partners to achieve our ecosystem objectives. Through continuing emphasis on partnerships and innovation, we will protect and restore coastal water quality through the National Estuary Program and related coastal watershed support. In coordination with the Corps of Engineers, EPA will improve the CWA Section 404 program to achieve no net loss of wetlands by

³ U.S. EPA, Office of Pollution Prevention and Toxics, High Production Volume Challenge Program, HPV Commitment Tracking System. Available at <http://www.epa.gov/chemrtk/viewsrch.htm>.

⁴ U.S. EPA website, www.epa.gov/opptintr/iur; Title 40 CFR Part 710, Subpart A

⁵ See www.epa.gov/lead

avoiding, minimizing and compensating for losses. With an emphasis on community-based restoration, EPA will contribute to the goal of no net loss of wetlands.

Great Lakes Strategy 2002, developed by EPA and Federal, state, and Tribal agencies in consultation with the public, advances U.S. Great Lakes Water Quality Agreement implementation. Its long-range vision for a healthy natural environment where all beaches are open for swimming, all fish are safe to eat, and the Lakes are protected as a safe source of drinking water, is supported by Lakewide Management Plans (LaMPs) and Remedial Action Plans (RAPs) for Areas of Concern (AOCs).

Work in the Chesapeake Bay is based on a unique regional partnership formed to direct and conduct restoration of the Chesapeake Bay. Partners include Maryland, Virginia and Pennsylvania; the District of Columbia; the Chesapeake Bay Commission; EPA; and participating citizen advisory groups. A comprehensive and far-reaching agreement, Chesapeake 2000, will guide restoration and protection efforts through 2010. The agreement focuses on improving water quality as the most critical element in the overall protection and restoration of the Bay and its tributaries.

EPA's efforts in the Gulf of Mexico represent a broad, multi-organizational partnership based on the participation of business and industry, agriculture, local government, citizens, environmental and fishery interests, Federal agencies, and five Gulf States. The partners voluntarily identify key environmental problems and work at the regional, state, and local level to define and recommend solutions.

Brownfields

Brownfields are defined as real properties, where expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Brownfields include abandoned industrial and commercial properties, drug labs, mine-scarred land, and sites contaminated with petroleum or petroleum products. The Small Business Liability Relief and Brownfields Revitalization Act (SBLRBRA), signed into law in 2002, expands Federal grants for assessment, cleanup, and job training. To encourage revitalization and reuse of brownfield sites, the law limits the legal liability of prospective purchasers, innocent land holders, and contiguous property owners related to brownfield properties. In addition, the law provides for establishing and enhancing state

and Tribal response programs, which play a critical role in successfully cleaning up and revitalizing brownfields.

Brownfields grants will continue to provide communities with vital assessment, cleanup, revolving-loan fund, and job-training support. Brownfields assessment grants provide funding to inventory, characterize, assess, and conduct planning and community involvement activities related to brownfields. Brownfields revolving-loan fund grants provide funding for a grantee to capitalize a revolving loan and make subgrants to carry out cleanup activities. Cleanup grants, newly authorized by the Brownfields Law, will fund cleanup activities by grant recipients. Expanded authorities within the new law also address the potential for limited funding for institutional controls, insurance, and health monitoring. EPA will provide limited funding for grants that provide technical assistance, training, and research to Brownfields communities. EPA will also provide funding to create local environmental job training programs, ensuring that the economic benefits derived from Brownfields revitalization efforts remain in the community.

EPA will continue to work in partnership with state cleanup programs to address brownfield properties. The Agency will provide states and Tribes with tools, information, and funding they can use to develop response programs that will address environmental assessment cleanup, characterization, and redevelopment needs at sites contaminated with hazardous wastes and petroleum. The Agency will continue to encourage the empowerment of state, Tribal, and local environmental and economic development officials to oversee brownfield activities and the implementation of local solutions to local problems.

Research

EPA is continuing to ensure that it is a source of strong scientific and technical information, and that it is on the leading edge of environmental protection innovations that will allow achievement of its strategic objectives. The Agency consults a number of expert sources, both internally and externally, and uses several deliberative steps in planning its research programs. As a starting point, the Agency draws input from multi-year plans, EPA's Strategic Plan, available research plans, EPA program offices and Regions, Federal research partners, and peer advisory bodies such as the Science Advisory Board (SAB) and others. Agency teams prioritize research areas by examining risk and

other factors such as National Science and Technology Council (NSTC) research, client office

priorities, court orders, and legislative mandates. EPA's research program will increase understanding of environmental processes and capabilities to assess environmental risks to both human health and ecosystems.

To enable the Agency to enhance science and research for healthy people, communities, and ecosystems through 2008, EPA will engage in high priority, multidisciplinary research efforts to improve understanding of the risks associated with: 1) human health and ecosystems; 2) climate change; 3) pesticides and toxics; 4) computational toxicology; 5) endocrine disruptors; 6) mercury, and 7) homeland security. Following is a summary of the means and strategies to meet the Agency's long-term objectives in these areas.

EPA's human health research represents the Agency's only comprehensive program to address the limitations in human health risk assessment. Scientists across the Agency will use the measurement-derived databases, models, and protocols developed through this research program to strengthen the scientific foundation for human health risk assessment. In addition, global change, loss and destruction of habitat due to sprawl and exploitation of natural resources, invasive species, non-point source pollution, and the accumulation and interaction of these effects present emerging ecological challenges. EPA will conduct research to strengthen its ability to assess and compare risks to ecosystems, protect and restore them, and track progress toward optimal ecological outcomes.

EPA designs its Climate Change research program in collaboration with the other agencies participating in the Climate Change Science Program (CCSP). This research focuses on assessing potential direct and indirect effects of climate change on human health, air quality, water quality, and aquatic ecosystems; identifying and quantifying the uncertainties associated with those effects; and comparing potential climate change effects with effects caused by other stressors.

Research under the Food Quality Protection Act (FQPA) builds on earlier research to reduce scientific uncertainty in risk assessment. This research will provide data needed to develop refined aggregate and cumulative risk assessments, develop the appropriate safety factors to protect children and other sensitive populations, refine risk assessments,

and provide risk mitigation technologies. By 2008, EPA will provide scientific tools that can be used to

characterize, assess, and manage risks associated with the implementation of FQPA.

The Agency will conduct additional research on pesticides and toxics that support the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA), designed to enhance the Agency's human health and ecological risk assessment and risk management capabilities. Efforts will include the development of predictive tools used in testing requirements, research on probabilistic risk assessment methods, biotechnology, and other areas of high interest and utility to the Agency.

To enhance the scientific basis and diagnostic/predictive capabilities of existing and proposed chemical testing programs, EPA's Computational Toxicology (CT) Research Program will use *in vitro* or other approaches such as molecular profiling, bioinformatics, and quantitative structure-activity relationships. These alternative approaches, in conjunction with highly sophisticated computer-based models and research results, will greatly reduce the use of animal testing to obtain chemical toxicity information. To support our regulatory mandates, endocrine disruptors research will focus on improving EPA's scientific understanding of exposures to, effects of, and management of endocrine-disruptor chemicals. Research in direct support of EPA's screening and testing programs will evaluate current testing protocols and develop new protocols to evaluate potential endocrine effects of environmental agents. The Agency will also conduct research to determine impacts that endocrine-disrupting chemicals may have on humans, wildlife, and the environment.

A 1997 *EPA Mercury Study Report to Congress* discussed the magnitude of mercury emissions in the United States and concluded that a plausible link exists between human activities that release mercury from industrial and combustion sources in the United States and methylmercury concentrations in humans and wildlife. The Agency will conduct risk management research for managing emissions from coal-fired utilities (critical information for rule-making) and non-combustion sources of mercury; on the fate and transport of mercury in the atmosphere; for assessing methylmercury in human populations; and for developing risk communication methods and tools.

EPA's Homeland Security research program will expand knowledge of potential threats, as well as its response capabilities, by assembling and evaluating private sector tools and capabilities. Preferred response approaches will be identified, promoted, and evaluated for potential future use by first responders, decision makers, and the public. The Agency will be working closely with other federal and outside organizations to fill gaps in this critical research area. EPA's research will focus on preparedness, risk assessment, detection, containment, decontamination and disposal of chemical and biological attacks water systems.

STRATEGIC OBJECTIVES AND FY 2005 ANNUAL PERFORMANCE GOALS

Chemical, Organism, and Pesticide Risks

- Ensure new pesticide registration actions (including new active ingredients and new uses) meet new health standards and are environmentally safe.
- Increase percentage of acre treatments that will use reduced-risk pesticides.
- Decrease occurrence of residues of carcinogenic and cholinesterase-inhibiting neurotoxic pesticides on foods eaten by children from their 1994 to 1996 average.
- Ensure that through ongoing data reviews, pesticide active ingredients, and products that contain them, are reviewed to assure adequate protection for human health and the environment, taking into consideration exposure such as subsistence lifestyles of the Native Americans.
- Standardize and validate screening assays.
- Reduce from 1995 levels the number of incidents involving mortalities to nontargeted terrestrial and aquatic wildlife caused by pesticides.
- Reduce exposure to and health effects from priority industrial and commercial chemicals.
- Identify, restrict, and reduce risks associated with industrial and commercial chemicals.

Ecosystems

- Support wetlands and stream corridor restoration and management and

assessment/monitoring of overall wetland health.

- Support projects with the goal of creating,
- restoring or protecting 2400 acres of important coastal and marine habitats per year in the Gulf of Mexico.
- Assist the Gulf States in implementing watershed restoration actions in priority impaired coastal river and estuary segments.
- Improve Great Lakes ecosystem components, including progress on fish contaminants, beach closures, air toxics and trophic status.
- Improve the aquatic health of the Chesapeake Bay.
- By 2005, working with partners, achieve no net loss of wetlands.

Community Health

- Empower states, Tribes, local communities and other stakeholders in economic redevelopment to work together to prevent, assess, safely cleanup, and reuse Brownfields.
- Through December 2003, the Brownfields program has awarded 552 Brownfields assessment grants, over 171 Brownfields revolving loan funds and 50 cleanup grants, and 66 job training grants.
- Assess 1,000 Brownfields properties,
- Clean up 60 properties using Brownfields funding,
- Leverage \$1.0 billion in cleanup/redevelopment funding,
- Leverage 5,000 jobs.
- Train 200 participants, placing 65 percent in jobs.

Science and Research

- Establish and maintain Centers of Applied Science to provide technical assistance and coordination of applied research activities addressing the latest needs of stakeholders.
- Provide high quality exposure, effects and assessment research results that support the August 2006 reassessment of current-use pesticide tolerances, so that, by 2008, EPA will be able to characterize key factors influencing children's and other subpopulations' risks from pesticide exposure.

- By 2005, provide risk assessors and managers with methods and tools for measuring exposure and effects in children.
- By 2005, provide technical guidance for implementing and evaluating projects to restore riparian zones, so that, by 2010, watershed managers have state-of-the-science field evaluation tools, technical guidance and decision-support systems.
- Through 2005, initiate or submit to external review 28 human health assessments and complete 12 human health assessments through the Integrated Risk Information System (IRIS).

HIGHLIGHTS

Chemical, Organism and Pesticide Risks

Pesticide Registration

In 2005, the Agency will continue its efforts to decrease the risk to the public from pesticide use through the regulatory review of new pesticides. EPA expedites the registration of reduced risk pesticides, which are generally presumed to pose lower risks to consumers, workers, the ozone layer, groundwater, and wildlife. These accelerated pesticide reviews provide an incentive for industry to develop, register, and use lower risk pesticides. Additionally, the availability of these reduced risk pesticides provides alternatives to older, potentially more harmful products currently on the market.

Biological agents are potential weapons that could be exploited by terrorists against the United States. EPA's pesticides antimicrobial program is working to help address this threat. Antimicrobials play an important role in public health and safety. EPA is conducting comprehensive scientific assessments and developing test protocols to determine the safety and efficacy of products used against chemical and biological weapons of mass destruction, and registering products as necessary. EPA is also developing a timeline for prioritizing and implementing the tests.

Tolerance Reassessment and Reregistration

The 1996 Food Quality Protection Act requires the reassessment of existing pesticide tolerances by 2006. A tolerance is the amount of pesticide residue that may legally remain on a food. Pesticide reregistration is a statutory requirement under the 1988 amendments to FIFRA. Under the

law, all pesticides registered prior to November 1984 must be reviewed to ensure that they meet current health and safety standards. Many pesticides must be reviewed under both statutes. Additional program requirements and priorities within FQPA include:

- Review of inert ingredients;
- Reform of the antimicrobial review process;
- Transparency of our regulatory decisions;
- Incorporation of aggregate and cumulative risk into our reviews;
- Special protection for infants and children;
- Screening of pesticides for endocrine disrupting effects;
- Enhancements to minor use program; and
- Emphasis on registration of reduced risk pesticides

In the Pesticides program, the main focus, our primary goal, and our largest public commitment is to meet the final statutory goal for completing tolerance reassessment by August 3, 2006. Additional resources of \$4,400,000 are requested in this program to complete food use reregistration work necessary for the Agency to complete tolerance reassessments by 2006 as required by FQPA. These resources will support completion of conventional pesticides, inerts, biopesticides and antimicrobial reviews. The reviews can take several years to complete, therefore FY 2005 is the last opportunity to ensure the Agency has the resources to meet the 2006 FQPA deadline.

In FY 2005, the Agency will continue its review of older pesticides and move forward toward its ten-year statutory deadline of reassessing all 9,721 tolerances. EPA met its first two statutory deadlines under FQPA for tolerance reassessment. The tolerance reassessment process addresses the highest-risk pesticides first. Using data surveys conducted by USDA, FDA and other sources, EPA has identified a group of "top 20" foods consumed by children and matched those with the tolerance reassessments required for pesticides used on those foods. The Agency is tracking its progress in determining appropriate tolerances for these pesticides under the FQPA standards. In 2005, EPA will continue its effort to reduce dietary risks to children by completing approximately 93 percent (cumulative) of these children's tolerances of special concern.

Through the Reregistration program, EPA reviews pesticides currently on the market to ensure they meet the latest health standards. Pesticides not in compliance with the standards will be eliminated or restricted in order to minimize potentially harmful

exposure. FQPA added considerably more complexity to the pesticide reregistration process, lengthening the "front end" of reregistration. These requirements include considering aggregate and cumulative risk in our risk assessments, implementing new processes to increase involvement of pesticide users and other stakeholders, and ensuring a reasonable opportunity for agriculture to make the transition to new, safer pest control tools and practices.

In 2005, EPA will work toward completing 40 Reregistration Decisions⁶, 400 product reregistrations and 1000 tolerance reassessments. The Agency will also continue to develop tools to screen pesticides for their potential to disrupt the endocrine system. Over the longer run, these changes will enhance protection of human health and the environment.

Appropriate transition strategies to reduced risk pesticides are important to the nation to avoid disruption of the food supply or sudden changes in the market that could result from abruptly terminating the use of a pesticide before well-targeted reduced risk equivalents can be identified and made available. In FY 2005, the Agency will continue efforts to reach more farmers and grower groups, encourage them to adopt safer pesticides, and use environmental stewardship and integrated pest management practices. These outreach efforts play pivotal roles in moving the nation to the use of safe pest control methods, including reduced risk pesticides. These programs promote risk reduction through collaborative efforts with stakeholders to use safer alternatives to traditional chemical methods of pest control.

Endangered Species

Also in FY 2005, the Agency is requesting additional resources of \$1,000,000 for the Endangered Species program. The Agency has been working with the Fish and Wildlife Service and the National Marine Fisheries Service to improve the review process on the potential impact of pesticides on endangered species. Efforts include elevating the level of detail of specificity in risk assessments to more realistically predict risks to endangered species populations; developing a compendium of species biology, food and habitat requirements, listing specification and recovery efforts; ensuring

implementation of applicable label provisions; and supporting State and Tribal entities in protecting endangered species. This funding will be used mainly by the states for assisting in the implementation of these improvements.

Endocrine Disruptors

EPA's Endocrine Disruptors Screening Program (EDSP) was established in response to an FQPA requirement, and to growing concerns in the scientific community about observed adverse effects in wildlife and their potential relationship to human effects. The program's primary objectives are to establish validated assays and scientifically-supported tools for testing chemicals for possible adverse effects to the endocrine system. FQPA requires that "validated" assays be used in the Screening Program, but at passage in 1996, available endocrine effects test methods were principally experimental and none had been validated. EPA has spent the past several years standardizing a defined set of assays and establishing their relevance and reliability. The long-term outcomes of the EDSP will be a baseline estimate of the degree of endocrine disruption occurring from environmental chemicals, and a way to measure the risk.

High Production Volume Challenge Program

EPA's High Production Volume (HPV) Challenge Program, established in cooperation with industry, environmental groups, and other interested parties, works to ensure that critical human health and environmental effects data on approximately 2,800 HPV chemicals are screened and made publicly available. HPV chemicals are defined as industrial chemicals that are manufactured or imported into the United States in volumes of one million pounds or more each year. Through this program, EPA asks industry to voluntarily sponsor HPV chemicals for screening-level testing. Hazard test information on large volume chemicals is now more visible through the HPV website⁷, giving states, regions, and Tribes accessibility and the ability to share critical data and information. EPA's screening efforts should be well under way by FY 2005 and are expected to result in follow up actions on five to ten percent of the chemicals screened.

Lead Poisoning Prevention Activities

⁶ Reregistration Decisions include Reregistration Eligibility Decisions [REDs], Tolerance Reregistration Eligibility Decisions [TREDs] and Interim Reregistration Eligibility Decisions [IREDs].

⁷ U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics. "High Production Volume (HPV) Challenge Program." Available online at: <http://www.epa.gov/chemrtk/volchall.htm>. Washington, DC. Accessed September 9, 2003.

EPA is part of the Federal effort to address lead poisoning and elevated blood levels in children by assisting in, and in some cases guiding, Federal activities aimed at reducing the exposure of children in homes with lead-based paint. In 2005, EPA plans to proceed with a proposed rule on the de-leading of bridges and structures. Also, because much of the remaining incidence of lead poisoning occurs in low-income, urban areas, new public education initiatives will focus on these populations. EPA also plans to step up efforts with the private sector to increase knowledge and ability to work in a lead-safe manner as a normal part of doing business, and plans to ensure that special attention is paid to private sector (non-profit and for-profit) organizations working in high-impact areas.

Risk Management Plans

Reducing chemical accidents is vital to ensure that communities are not exposed to hazardous materials. The Agency continues its efforts to help states and Local Emergency Planning Committees (LEPCs) implement the risk management plan (RMP) program. In FY 2002, 398 RMP audits were conducted and the Agency continues to make steady progress in this area. In FY 2005, EPA will provide technical assistance grants, technical support, outreach, and training to state and LEPCs. Through these activities, states, local communities and individuals will be better prepared to prevent and prepare for chemical accidents.

Community Health

Brownfields

The Brownfields program is designed to empower states, Tribes, local communities and other stakeholders in economic redevelopment to work together to prevent, assess, safely cleanup, and reuse Brownfields. Through December 2003, the Brownfields program has awarded 552 Brownfields assessment grants, over 171 Brownfields revolving loan funds and 50 cleanup grants, and 66 job training grants. In FY 2005, working with its state, Tribal, and local partners to meet its objective to sustain, cleanup, and restore communities and the ecological systems that support them, EPA intends to assess 1,000 Brownfields properties, clean up 60 properties using Brownfields funding, leverage \$1.0 billion in

cleanup/redevelopment funding, leverage 5,000 jobs, and train 200 participants, placing 65 percent in jobs.

Ecosystems

National Estuary Program

EPA will continue to support protection and restoration efforts in high-priority ecosystems, including those covered by the National Estuary Program (NEP). Key NEP activities will include continued support for assessing status and trends, and implementation activities to restore and protect critical habitat.

State and Tribal Grants

EPA will continue its grants to states and Tribes to help them protect wetlands made vulnerable by the SWANCC ruling as part of comprehensive programs that will achieve no net loss of wetlands, while also providing grant funding for states and Tribes to assume more decision-making authority in waters that remain subject to the CWA.

Watersheds

Targeted geographic watershed initiatives are an important component of community-based environmental protection and restoration. In the Great Lakes, EPA will target additional resources to clean up contaminated sediments and strive to reduce PCB concentrations in lake trout and walleye. The emphasis in the Chesapeake Bay will be the restoration of submerged aquatic vegetation (SAV). To achieve improved water quality and restore submerged aquatic vegetation, Chesapeake Bay partners have committed to reducing nutrient and sediment pollution loads sufficiently to remove the Bay and the tidal portions of its tributaries from the list of impaired waters. Continued implementation of core water programs and efforts to address the hypoxic zone will help to restore the waters of the Gulf of Mexico and its tributaries.

Research

Research for Human Health and Ecosystems

In order to improve the scientific basis for identifying, characterizing, assessing, and managing environmental exposures that can pose the greatest health risks to the American public, EPA is committed to developing and verifying innovative methods and models for assessing the susceptibilities of sub-populations, such as children and the elderly, to environmental toxins. Since many of the current human health risk assessment methods, models, and databases are based on environmental risks for adults, this research is primarily aimed at enhancing current risk assessment and management strategies and guidance to better consider risk determination needs for children.

In FY 2005, research will identify modes of action by which specific groups of chemicals/pesticides increase cancer or non-cancer health risks as a function of life stage, develop the necessary tools and models to characterize and conduct field studies on exposures to high-priority environmental chemicals in the elderly, and examine effects of pre-existing respiratory disease (e.g., asthma, bronchitis) on response to air pollutants.

EPA will continue to generate exposure measurement and exposure factor data and establish methods to support the development, evaluation, and enhancement of models of aggregate exposures, dose, and effects. This research seeks to understand the key determinants of exposure and risk, improve exposure measurement techniques, and develop critical data on exposure and exposure factors. The results will be used to fill data gaps and reduce reliance on numerous default assumptions that are currently used in the risk assessment process, which will strengthen the scientific foundation for human health risk assessment.

Additional research will provide regulatory decision-makers with models and guidance that will be used for conducting assessments for cumulative exposure and risks to pollutants that pose the greatest health risks to the American public. Activities for FY 2005 and beyond include: 1) developing and refining physiologically-based pharmacokinetic

(PBPK) models for using exposure, biomarker, and PK data in risk assessments; 2) examining promising new biomarkers of exposure and effects that can be used in future exposure and epidemiological studies, such as the National Children's Study (NCS); and 3) sponsoring research that will provide a framework for structuring evaluations of the toxicity of complex chemical mixtures for use in human and environmental health assessments.

In order to balance the growth of human activity with the need to protect the environment, it is important to understand the current condition of ecosystems, what stressors are changing that condition, what the effects may be from those changes, and what can be done to prevent, mitigate, or adapt to those changes. In FY 2005, the Environmental Monitoring and Assessment Program (EMAP) will continue to be a major contributor to EPA's environmental indicators report and will be instrumental in improving state contributions to the Agency's bi-annual report to Congress on the condition of the Nation's waters. Baseline ecological condition of Western streams will be determined so that, by 2008, a monitoring framework is available for streams and small rivers in the Western U.S. that can be used from the local to the national level for statistical assessments of condition and change to ecological resources.

Research will also provide technical guidance for implementing and evaluating projects to restore riparian zones, which are critical landscape components for the restoration of aquatic ecosystems and water quality. Research will include: (1) development, demonstration and technical support for monitoring designs, indicators, and interpretive analysis tools to allow States and Tribes to monitor and report the condition of water resources; (2) development of approaches to identify and test the linkages between probability-based and targeted water quality monitoring programs, landscape characteristics and the probability of water body impairment; (3) development of monitoring methods and decision support systems to improve our ability to identify probable causes of ecological impairment in streams; and (4) development of monitoring approaches to evaluate the effectiveness of programs to manage and restore aquatic resources in reaching performance objectives at site, regional, state and national scales.

The Agency will continue research to assess the impacts of invasive species on U.S. ecosystems, including monitoring for invasive species as part of the Western EMAP program and the National Coastal Assessment, modeling zebra mussel influence on

nutrients in Great Lakes Ecosystems, and developing a model for predicting where certain species will invade next.

Research efforts in FY 2005 will continue to build on the Agency's FY 2004 Clear Skies Research Initiative to identify where emerging control technologies and continuous measurement of mercury combustion sources can facilitate or optimize mercury emissions reduction. This research will also give support to the recent Utility Mercury Reductions proposal signed by Administrator Leavitt on December 15, 2003.

EPA will increase efforts to implement information quality guidelines. While the Agency has extensive procedures in place to ensure that the information it disseminates meets high standards, further actions will be taken to ensure that such information is current and fully complies with the guidelines. In FY 2005, the Agency will establish an extramural mechanism to assist Regions in identifying external peer reviewers and securing their advice and assistance.

Climate Change Research

EPA's Climate Change Research Program supports one of six Administration FY 2005 Interagency Research and Development Priorities - Climate Change Science and Technology. All activities to assess potential impacts of global climate change will be developed and coordinated with the Climate Change Science Program (CCSP). Attention is expected to be given to assessing the potential consequences of global change – including climate variability and change, land use changes, and UV radiation – on air quality, water quality, ecosystem health, and human health. The Agency will also assess potential adaptation strategies for building resilience to global change, while responding to both potential risks and opportunities.

Research for Pesticides and Toxics

EPA is continuing to build on research launched under the FY 2003 Biotechnology Initiative focusing on plant-incorporated protectants (PIP) crops. In FY 2005, the Agency will deliver a final report outlining the state-of-the-art in tools for monitoring resistance development in the field and the use of target pest ecology to refine Insect Resistance Management strategies, as they are determined in risk assessment practice. This report will focus on data gaps in pest biology, ecology, and population dynamics related to insect resistance development. The report will also lend insight into the development of appropriate tools to identify and

measure resistance in field populations of target pests.

Research for Computational Toxicology

EPA's Computational Toxicology research program supports the Molecular-level Understanding of Life Processes activity, one of the Administration's six FY 2005 Interagency Research and Development Priorities, by employing the use of genomic information and modern computational techniques to enable better management of chemicals that may be present in the environment. In FY 2005, EPA will invest additional resources in computational toxicology (CT) research – 4.0 FTE and \$4,080,093. The FY 2005 CT investment will build upon the current program by accelerating the use of bioinformatics and other computational approaches and apply the program to address other high priority regulatory issues, including the assessment of important classes of environmental agents. In FY 2005, the Agency will begin to develop computational models that could be used to help prioritize anti-microbial agents and inerts for screening and testing requirements.

Fellowships

The STAR fellowship program is the only Federal fellowship program designed exclusively for students pursuing advanced degrees in the environmental sciences and engineering. In FY 2005, the Agency will invest additional resources to support STAR graduate fellowships. This additional investment will extend the purpose of developing high quality scientists across multiple disciplines, including the biological and physical sciences, mathematics, computer sciences, and engineering that will benefit EPA, the private sector, and the entire Nation.

In FY 2005, EPA will also invest additional resources to support Association of Schools of Public Health (ASPH) fellowships. This investment will further extend the important contribution to public health issues that ASPH fellows provide within EPA, thereby helping EPA to better design its programs for human health outcomes. Under a cooperative agreement with the ASPH, eligible fellows are placed in EPA labs, centers, and offices to conduct projects that contribute to EPA's public health mission.

Research for Homeland Security

EPA's Homeland Security research program will continue to conduct critical cross-cutting research to provide near-term, appropriate, affordable, reliable, tested, and effective technologies and guidance. Work will focus on preparedness, risk

assessment, detection, containment, decontamination, and disposal of chemical and biological agents used in attacks on water systems. New work will be initiated in the decontamination and clean up of biological agents.

EXTERNAL FACTORS

The ability of the Agency to achieve its strategic goals and objectives depends on several factors over which the Agency has only partial control or influence. Partnerships, voluntary cooperation, international collaboration, industry, economic influences, industrial accidents, natural disasters, litigation, and legislation play critical roles, affecting the Agency's results. Changes in the focus, level of effort, or status of any of these components could affect the success of the Agency's programs under Goal 4. Consequently, EPA must consider these factors as it establishes annual performance measures and targets.

EPA assures the safe use of pesticides in coordination with the USDA and FDA, who have responsibility to monitor and control residues and other environmental exposures. EPA also works with these agencies to coordinate with other countries and international organizations with which the United States shares environmental goals. The Agency employs a number of mechanisms and programs to assure that our partners in environmental protection will have the capacity to conduct the activities needed to achieve the objectives. However, as noted, EPA often has limited control over these entities. Much of the success of EPA programs depends on the voluntary cooperation of the private sector and the public.

Other factors that may delay or prevent the Agency's achievement of the objectives include lawsuits that delay or stop the planned activities of EPA and/or State partners, new or amended legislation, and new commitments within the Administration. Economic growth and changes in producer and consumer behavior could also have an influence on the Agency's ability to achieve the objectives within the time frame specified.

Large-scale accidental releases, such as pesticide spills, or rare catastrophic natural events (such as hurricanes or large-scale flooding) could impact EPA's ability to achieve objectives in the short term. In the longer term, new technology, newly identified environmental problems and priorities, or unanticipated complexity or magnitude of pesticide-related problems may affect the time frame for achieving the objectives or long-term goals. For example, pesticide use is affected by unanticipated outbreaks of pest infestations and/or

disease factors, which require EPA to review emergency uses in order to preclude unreasonable risks to the environment. While the Agency can provide incentives for the submission of registration actions such as reduced risk and minor uses, EPA does not control incoming requests for registration actions. As a result, the Agency's projection of regulatory workload is subject to change.

Progress in reducing risks is often highly dependent on industry's response to EPA assistance and initiatives. EPA has little direct control over the pace and volume at which industry develops new chemicals or pesticides; we primarily concentrate on providing industry with tools, such as the PBT Profiler and Pollution Prevention Framework, or

incentives, such as the priority review of reduced-risk pesticides, to help screen out high-risk chemicals before they are submitted for EPA review. These tools and incentives have been shown to be effective in gaining cooperation from industry and meeting our long-term and annual goals. In addition, voluntary programs, such as the HPV Challenge Program, operate exclusively on the basis of industry commitments for participation. Industry's response to such initiatives affects the Agency's ability to achieve effective new chemical screening efficiently.

Research

Strong science is predicated on the desire of the Agency to make human health and environmental decisions based on high-quality scientific data and information. This challenges the Agency to perform and apply the best available science and technical analyses when addressing health and environmental problems. Such a challenge moves the Agency to a more integrated, efficient, and effective approach of reducing potential risks. As long as high quality science is a central tenant for actions taken by the Agency, then external factors will have a minimal impact on the goal.

Resource Summary
(Dollars in thousands)

| | FY 2003 | FY 2004 | FY 2005 | FY 2005 Req. v. |
|---|----------------------|----------------------|----------------------|-------------------------|
| | Actuals | Pres. Bud. | Pres. Bud. | FY 2004 Pres Bud |
| Healthy Communities and Ecosystems | \$1,211,267.2 | \$1,262,438.1 | \$1,298,932.0 | \$36,493.9 |
| Chemical, Organism, and Pesticide Risks | \$345,298.1 | \$364,126.3 | \$383,305.4 | \$19,179.2 |
| Communities | \$313,167.7 | \$317,572.9 | \$319,958.4 | \$2,385.4 |
| Ecosystems | \$171,169.4 | \$160,698.1 | \$200,844.5 | \$40,146.5 |
| Enhance Science and Research | \$380,878.7 | \$420,040.9 | \$394,823.7 | (\$25,217.2) |
| Total Workyears | 3,923.7 | 3,824.4 | 3,850.1 | 25.8 |

OBJECTIVE: Chemical, Organism, and Pesticide Risks

Prevent and reduce pesticide, chemical, and genetically engineered biological organism risks to humans, communities, and ecosystems.

Resource Summary (Dollars in Thousands)

| | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | FY 2005 Req. v. FY 2004 Pres Bud |
|--|--------------------|-----------------------|-----------------------|-------------------------------------|
| Chemical, Organism, and Pesticide Risks | \$345,298.1 | \$364,126.3 | \$383,305.4 | \$19,179.1 |
| Credit Subsidy Re-estimate | \$905.5 | \$0.0 | \$0.0 | \$0.0 |
| Environmental Program & Management | \$307,746.6 | \$327,982.7 | \$346,346.5 | \$18,363.8 |
| Science & Technology | \$4,939.6 | \$5,379.6 | \$5,469.4 | \$89.8 |
| Building and Facilities | | \$6,827.6 | \$7,375.2 | \$547.6 |
| State and Tribal Assistance Grants | \$23,630.5 | \$22,236.0 | \$22,367.0 | \$131.0 |
| Inspector General | \$1,334.9 | \$1,700.4 | \$1,747.3 | \$46.9 |
| Total Workyears | 1,819.1 | 1,837.0 | 1,859.8 | 22.7 |

Program Project (Dollars in Thousands)

| | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | FY 2005 Req. v. FY 2004 Pres Bud |
|--|--------------------|-----------------------|-----------------------|-------------------------------------|
| Children and other Sensitive Populations | \$365.2 | \$0.0 | \$116.0 | \$116.0 |
| Categorical Grant: Pesticides Program Implementation | \$8,492.9 | \$8,536.0 | \$8,667.0 | \$131.0 |
| Pesticides: Field Programs | \$19,119.3 | \$23,246.9 | \$24,703.2 | \$1,456.3 |
| Congressionally Mandated Projects | \$3,929.8 | \$0.0 | \$0.0 | \$0.0 |
| Homeland Security: Preparedness, Response, and Recovery | \$686.3 | \$2,327.4 | \$2,339.8 | \$12.4 |
| Categorical Grant: Lead | \$15,137.6 | \$13,700.0 | \$13,700.0 | \$0.0 |
| Commission for Environmental Cooperation | \$304.4 | \$393.8 | \$417.1 | \$23.3 |
| Pesticides: Registration of New Pesticides | \$42,458.9 | \$35,981.6 | \$45,310.2 | \$9,328.6 |
| Pesticides: Review / Reregistration of Existing Pesticides | \$50,922.0 | \$64,314.4 | \$60,471.0 | (\$3,843.4) |
| POPs Implementation | \$2,090.9 | \$2,224.4 | \$2,235.4 | \$11.0 |
| State and Local Prevention and Preparedness | \$10,273.0 | \$12,508.1 | \$12,134.8 | (\$373.3) |
| Toxic Substances: Chemical Risk Management | \$10,464.4 | \$9,243.1 | \$9,514.2 | \$271.1 |
| Toxic Substances: Chemical Risk Review and Reduction | \$42,212.4 | \$45,536.2 | \$45,878.8 | \$342.6 |
| Toxic Substances: Lead Risk Reduction Prgm | \$11,263.0 | \$14,832.9 | \$11,082.6 | (\$3,750.3) |
| TRI / Right to Know | \$14,687.6 | \$14,690.6 | \$15,940.9 | \$1,250.3 |
| International Capacity Building | \$2,109.8 | \$1,541.2 | \$1,804.7 | \$263.5 |
| Administrative Projects | \$110,780.6 | \$115,049.7 | \$128,989.7 | \$13,940.0 |
| TOTAL | \$345,298.1 | \$364,126.3 | \$383,305.4 | \$19,179.1 |

ANNUAL PERFORMANCE GOALS AND MEASURES**GOAL: HEALTHY COMMUNITIES AND ECOSYSTEMS****OBJECTIVE: CHEMICAL, ORGANISM, AND PESTICIDE RISKS****Annual Performance Goals and Measures****Decrease Risk from Agricultural Pesticides**

- In 2005 Ensure new pesticide registration actions (including new active ingredients, new uses) meet new health standards and are environmentally safe.
- In 2005 Percentage of acre treatments that will use applications of reduced-risk pesticides
- In 2004 Decrease adverse risk from agricultural uses from 1995 levels.
- In 2003 124 safer chemicals and biopesticides were registered, 72 new chemicals were registered, and 425 new uses were registered. Date for acre-treatments is expected in 2004.

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
|---|--------------------|-----------------------|-----------------------|---------------------|
| Register safer chemicals and biopesticides | 124 | 131 | 135 | Regist. (Cum) |
| New Chemicals (Active Ingredients) | 72 | 74 | 84 | Regist. (Cum) |
| New Uses | 425 | 3,079 | 3,479 | Actions (Cum) |
| Percentage of acre-treatments with reduced risk pesticides | Data lag | 8.5% | 8.7% | Acre- Treatments |
| Maintain timeliness of S18 decisions | | | 45 | Days |
| Reduce registration decision times for new conventional chemicals | | | 7% | Reduction |
| Reduce registration decision times for reduced risk chemicals | | | 3% | Reduction |

Baseline: The baseline for registration of reduced risk pesticides, new chemicals, and new uses, is zero in the year 1996 (the year FQPA was enacted). Progress is measured cumulatively since 1996. The baseline for acres-treated is 3.6% of total acreage in 1998, when the reduced-risk pesticide acres-treatments was 30,332,499 and total (all pesticides) was 843,063,644 acre-treatments. Each year's total acre-treatments, as reported by Doane Marketing Research, Inc. serves as the basis for computing the percentage of acre-treatments using reduced risk pesticides. Acre-treatments count the total number of pesticide treatments each acre receives each year. As of 2003, there are no products registered for use against other potential bio-agents (non-anthrax). Conventional pesticides FY 2002 baseline for reducing decision time is 44 months; reduced risk pesticides FY 2002 baseline for reducing time is 32.5 months. The 2005 baseline for expedited new active ingredient pesticides is 4. The S18 2005 baseline is 45 days.

Reduce use of highly toxic pesticides

- In 2005 Decrease occurrence of residues of carcinogenic and cholinesterase-inhibiting neurotoxic pesticides on foods eaten by children from their average 1994-1996 levels
- In 2004 Decrease occurrence of residues of carcinogenic and cholinesterase-inhibiting pesticides on foods eaten by children from their average 1994-1996 levels.

In 2003 Data available in 2004.

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
|---|--------------------|-----------------------|-----------------------|-----------------------|
| Reduction of detections on a core set of 19 foods eaten by children relative to detection levels for those foods reported in 1994-1996. | Data lag | 25% | 27% | Reduced Detections |

Baseline: Percent occurrence of residues of FQPA priority pesticides (organophosphates and carbamates) on samples of children's foods in baseline years 94-96. Baseline percent is 33.5% of composite sample of children's foods: apples, apple juice, bananas, broccoli, carrots, celery, grapes, green beans (fresh, canned, frozen), lettuce, milk, oranges, peaches, potatoes, spinach, sweet corn (canned and frozen), sweet peas (canned and frozen), sweet potatoes, tomatoes, and wheat.

Reassess Pesticide Tolerances

In 2005 Ensure that through ongoing data reviews, pesticide active ingredients, and products that contain them are reviewed to assure adequate protection for human health and the environment, taking into consideration exposure scenarios such as subsistence lifestyles of the Native Americans

In 2004 Ensure that through on-going data reviews, pesticide active ingredients and the products that contain them are reviewed to assure adequate protection for human health and the environment, taking into consideration exposure scenarios such as subsistence lifestyles of Native Americans.

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
|--|--------------------|-----------------------|-----------------------|---------------------|
| Tolerance Reassessment | 68% | 78% | 87.7% | Tolerances (Cum) |
| Reregistration Eligibility Decisions (REDs) | 75% | 81.7% | 88.2% | Decisions (Cum) |
| Product Reregistration | 306 | 750 | 400 | Actions |
| Tolerance reassessments for top 20 foods eaten by children | 65.6% | 83% | 93% | Tolerances (Cum) |
| Number of inert ingredients tolerances reassessed | | 100 | 100 | tolerances |
| Reduce decision time for REDs | | | 7% | Reduction |

Baseline: The baseline value for tolerance reassessments is the 9,721 tolerances that must be reassessed by 2006 using FQPA health and safety standards. The baseline for REDs is the 612 REDs that must be completed by 2008. The baseline for inerts tolerances is 870 that must be reassessed by 2006. The baseline for the top 20 foods eaten by children is 893 tolerances that must be reassessed by 2006. Tribal Pilot of 2 models in FY 2003; total number of models to be determined (current estimate is 16-18). Reregistration decision time baseline 38-40 months.

Testing of Chemicals in Commerce for Endocrine Disruption

In 2005 Standardization and validation of screening assays

In 2004 Standardization and validation of screening assays

| | | | | |
|----------------------------|--------------------|-----------------------|-----------------------|--------------------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| Screening Assays Completed | | 11 | 11 | Screening assay |

Baseline: The non-prioritized universe of chemicals that needs to be considered for prioritization includes: pesticide active ingredients, pesticide inert ingredients, chemicals on the TSCA Inventory, environmental contaminants, food additives, pharmaceuticals, cosmetics, nutritional supplements, and representative mixtures. "Priority-setting" refers to the determination of priorities for entry into Tier 1 Screening. The baseline for the Tier 1 screening measure is zero in 1996 - no valid methods for endocrine disruptor screening and testing existed when FQPA was enacted in FY1996.

Process and Disseminate TRI Information - OEI

In 2005 The increased use of the Toxic Release Inventory Made Easy (TRI-ME) will result in a total burden reduction of 5% for Reporting Year 2004 from Reporting Year 2003 levels.

In 2004 The increased use of the Toxic Release Inventory Made Easy (TRI-ME) will result in a total burden reduction of 5% for Reporting Year 2003 from Reporting Year 2002 levels.

| | | | | |
|--|--------------------|-----------------------|-----------------------|---------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| Percentage of TRI chemical forms submitted over the Internet using TRI-ME and the Central Data Exchange. | 25 | 50 | 55 | Percent |

Baseline: 4.2 million hours for FY 2002.

Reduce Wildlife Incidents and Mortalities

In 2005 Reduce from 1995 levels the number of incidents involving mortalities to nontargeted terrestrial and aquatic wildlife caused by pesticides

In 2004 Reduce Wildlife Incidents and Mortalities

| | | | | |
|---|--------------------|-----------------------|-----------------------|-----------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| Number of incidents and mortalities to terrestrial and aquatic wildlife caused by the 15 pesticides responsible for the greatest mortality to such wildlife | | 5 | 11 | reduction |

Baseline: 80 reported bird incidents (involving 1150 estimated bird casualties); 65 reported fish incidents (involving 632,000 estimated fish casualties) as reported in 1995.

Exposure to Industrial / Commercial Chemicals

In 2005 Reduce exposure to and health effects from priority industrial / commercial chemicals

In 2004 Reduce exposure to and health effects from priority industrial / commercial chemicals

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
|---|--------------------|-----------------------|-----------------------|--------------|
| Safe Disposal of Transformers | | 5,000 | 5,000 | Transformers |
| Safe Disposal of Capacitors | | 9,000 | 9,000 | Capacitors |
| number of children aged 1-5 years with elevated blood lead levels (>10 ug / dl) | | 270,000 | 225,000 | children |

Baseline: 1999/2000 baseline released in January 2003: Approximately 400,000 cases of childhood lead poisoning cases according to NHANES data. In 2004 a larger data set will be included as we will be expanding to include more EPA Regional efforts that will include all federally administered and State administered programs. Introduced the "number of children aged 1-5 years" measure in FY2004. Since the baseline is 1999/2000 data we are unable to project targets for 2004 and 2005 due to the data-lag. The FY2003 data for a new baseline may not be available until 2005. The baseline for PCB transformers is estimated at 2.2 million units and for capacitors is estimated at 1.85 million units as of 1988 as noted in the 1989 PCB Notification and Manifesting Rule. From 1991-2001 there was a declining trend in PCB disposal due to failing equipment and environmental liability: the total number of PCB large capacitors safely disposed of 436,485 and the total number of PCB transformers safely disposed of 172,672 as of 2002.

Risks from Industrial / Commercial Chemicals

- In 2005 Identify, restrict, and reduce risks associated with industrial/commercial chemicals.
- In 2004 Identify and reduce risks associated with international industrial/commercial chemicals.
- In 2004 Identify, restrict, and reduce risks associated with industrial/commercial chemicals.
- In 2003 Of the approximately 1,633 applications for new chemicals and microorganisms submitted by industry, ensure those marketed are safe for humans and the environment. Increased proportion of commercial chemicals that have undergone PMN review to signify they are properly managed and may be potential "green" alternatives to existing chemicals in commerce.

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
|--|--------------------|-----------------------|-----------------------|-----------------|
| Number of TSCA Pre-Manufacture Notice Reviews | 1,633 | 1,700 | | Notices |
| Make screening level health and environmental effects data publicly available for sponsored HPV chemicals | | 1,300 | | cum. chemicals |
| Reduction in the current year production-adjusted Risk Screening Environmental Indicators risk-based score of releases and transfers of toxic chemicals. | | 9% | 12% | Index |
| High Production Volume chemicals with complete Screening Information Data Sets (SIDS) submitted to OECD SIDS Initial Assessment Meeting | | 75 | | chemicals |
| Percentage of chemicals identified as highest priority by the Acute Exposure Guideline Levels (AEGLs) Program with short-term exposure limits established. | | | 52% | Total Chemicals |

Baseline: The baseline for TSCA PMNs in FY2004 is zero. (EPA receives about 1,700 PMNs per year for chemicals about to enter commerce. From 1979-2002, EPA reviewed about 40,000 PMNs. Of the 78,000 chemicals potentially in commerce, 16,618 have gone through the risk-screening process of Notice of Commencement.) The baseline for HPV measure is zero chemicals in 1998. The baseline for the RSEI measure is the index calculated for 2001. Baseline is 2002; calculation methodology by addition of AEGL values (10 minute, 1 hour, 4 hour and 24 hour exposure periods) and numbers of chemicals addressed. There is a list maintained by the AEGL FACA committee of highest priority chemicals: 99 chemicals are on List 1 which was generated at the program's inception in 1996 and 137 chemicals are highest priority on List 2 which was generated in 2001. Therefore the total of highest priority chemical stands today at 236 chemicals, however chemicals can be added or deleted from the list to fit stakeholder needs which is why we have decided to provide percentage targets. 2001 levels will serve as the baseline reference point for the percent reduction in relative risk index for chronic human health associated with environmental releases of industrial chemicals in commerce as measured by Risk Screening Environmental Indicators Model analyzing results to date. Measurement Development Plans exist for HPV, VCCEP, and New Chemicals.

Chemical Facility Risk Reduction

In 2005 Protect human health, communities, and ecosystems from chemical risks and releases through facility risk reduction efforts and building community infrastructures.

In 2004 Protect human health, communities, and ecosystems from chemical risks and releases through facility risk reduction efforts and building community infrastructures.

In 2003 Data available in March 2004.

| | | | | |
|--|--------------------|-----------------------|-----------------------|--------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| Number of risk management plan audits completed. | Data lag | 400 | 400 | audits |

Baseline: By the end of FY 2001, 438 risk management plan audits were completed.

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Performance Measure: Percentage of TRI chemical forms submitted over the Internet using the Toxic Release Inventory Made Easy (TRI-ME) and the Central Data Exchange (CDX).

Performance Database: TRI System (TRIS).

Data Source: Facility submissions of TRI data to EPA.

Methods, Assumptions, and Suitability: As part of the regular process of opening the mail at the TRI Reporting Center, submissions are immediately classified as paper or floppy disk. This information is then entered into TRIS. The identification of an electronic submission via CDX is done automatically by the software.

QA/QC Procedures: Currently, the mail room determines whether a submission is on paper or a floppy disk during the normal process of entering and tracking submissions. Electronic submissions via CDX are automatically tracked by the software. With an increase in electronic reporting via CDX, the manual mail room processing will be significantly reduced. Information received via hard copy is double-key entered. During the facility reconciliation process, the data entered are checked to ensure submission identification is accomplished at no less than 99 % accuracy. Accuracy is defined as accurate identification of document type.

Data Quality Reviews: Each month the Data Processing Center conducts data quality checks to ensure 99 % accuracy of submission information captured in TRIS.

Data Limitations: Occasionally, some facilities send in their forms in duplicative formats (e.g., paper, floppy, and/or through CDX). All submissions are entered into TRIS. The Data Processing Center follows the procedures

outlined in the document "Dupe Check Procedures" to identify potential duplicate submissions. Submissions through CDX override duplicate submissions through disk and/or hard copy. Floppy disk submissions override duplicate paper copy submissions.

Error Estimate: The error rate for "submission-type" data capture has been assessed to be less than 1%. The quality of the data is high.

New/Improved Performance Data or Systems: EPA continues to identify enhancements in E-reporting capabilities via CDX.

References: www.epa.gov/TRI

FY 2005 Performance Measure: Percentage of acre treatments with reduced risk pesticides.

Performance Database: EPA uses an external database, Doane Marketing Research data, for this measure.

Data Source: Primary source is Doane Marketing Research, Inc. (a private sector research database).

Methods, Assumptions and Suitability: A reduced-risk pesticide must meet the criteria set forth in Pesticide Registration Notice 97-3, September 4, 1997. Reduced-risk pesticides include those which reduce the risks to human health; reduce the risks to non-target organisms; reduce the potential for contamination of groundwater, surface water, or other valued environmental resources; and/or broaden the adoption of integrated pest management strategies or make such strategies more available or more effective. In addition, biopesticides are generally considered safer (and thus reduced-risk). EPA's statistical and economics staff review data from Doane. Information is also compared to prior years for variations and trends as well as to determine the reasons for the variability.

Doane sampling plans and QA/QC procedures are available to the public at their website. More specific information about the data is proprietary and a subscription fee is required. Data are weighted and multiple regression procedure is used to adjust for known disproportionalities (known disproportionality refers to a non proportional sample, which means individual respondents have different weights) and ensure consistency with USDA and state acreage estimates.

QA/QC Procedures: All registration actions must employ sound science and meet the Food Quality Protection Act (FQPA) new safety standard. All risk assessments are subject to public and scientific peer review. Doane data are subject to extensive QA/QC procedures, documented at their websites.

Data Quality Review: Doane data are subject to extensive internal quality review, documented at the website. EPA's statistical and economics staff review data from Doane. Information is also compared to prior years for variations and trends as well as to determine the reasons for the variability.

Data Limitations: Doane data are proprietary; thus in order to release any detailed information, the Agency must obtain approval.

Error Estimate: Error estimates differ according to the data/database and year of sampling. Doane sampling plans and QA/QC procedures are available to the public at their website. More specific information about the data is proprietary and a subscription fee is required. Data are weighted and multiple regression procedure is used to adjust for known disproportionalities and ensure consistency with USDA and state acreage estimates.

New/Improved Data or Systems: These are not EPA databases; thus improvements are not known in any detail at this time.

References: EPA Website; EPA Annual Report; Annual Performance Plan and Annual Performance Report, <http://www.ams.usda.gov/science/pdp/download.htm>; Doane Marketing Research, Inc.: <http://www.doanemr.com>; <http://www.usda.gov/nass/pubs> and <http://www.usda.nass/nass/nassinfo>; FFDCA Sec 408(a)(2); EPA Pesticide Registration Notice 97-3, September 4, 1997.

FY 2005 Performance Measure: Reduction in occurrences of carcinogenic and cholinesterase-inhibiting neurotoxic pesticide residues on a core set of 19 children's foods reported in 1994-1996

Performance Database: United States Department of Agriculture (USDA) Pesticide Data Program (PDP).

Data Source: Data collection is conducted by the states. Information is coordinated by USDA agencies and cooperating state agencies.

Methods, Assumptions and Suitability: The information is collected by the states and includes statistical information on pesticide use, food consumption, and residue detections, which provide the basis for realistic dietary risk assessments and evaluation of pesticide tolerance. Pesticide residue sampling and testing procedures are managed by USDA's Agricultural Marketing Service (AMS). AMS also maintains an automated information system for pesticide residue data and publishes annual summaries of residue detections.

This measure helps provide information on the effect of EPA's regulatory actions on children's health via reduction of pesticide residues on children's foods. The assumption is that through reduction of pesticide residues on these foods, children's exposure to pesticides will be reduced; thus, the risk to their health diminished. This measure contributes to the Agency's goal of protecting human health and is aligned with the Food Quality Protection Act (FQPA) mandate of protecting children's health.

QA/QC Procedures: The core of USDA's PDP's QA/QC program is Standard Operating Procedures (SOPs) based on EPA's Good Laboratory Practices. At each participating laboratory, there is a quality assurance (QA) unit which operates independently from the rest of the laboratory staff. QA Plans are followed as the standard procedure, with any deviations documented extensively. Final QA review is conducted by PDP staff responsible for collating and reviewing data for conformance with SOPs. PDP staff also monitors the performance of participating laboratories through proficiency evaluation samples, quality assurance internal reviews, and on-site visits. Additionally, analytical methods have been standardized in various areas including analytical standards, laboratory operations, data handling, instrumentation and QA/QC. With the exception of California, all samples of a commodity collected for PDP are forwarded to a single laboratory, allowing greater consistency, improved QA/QC and reduced sample loss. Program plans may be accessed at <http://www.ams.usda.gov/science/pdp/SOPs.htm>.

Data Quality Review: In addition to having extensive QA plans to ensure reliability of the data, the PDP follows EPA's Good Laboratory Practices in standard operating procedures. A QA committee composed of quality assurance officers is responsible for annual review of program SOPs and for addressing QA/QC issues. Quality assurance units at each participating laboratory operate independently from the laboratory staff and are responsible for day-to-day quality assurance oversight. Preliminary QA/QC review is done at each participating laboratory with final review performed by PDP staff for conformance with SOPs.

Data Limitations: Participation in the PDP is voluntary. Sampling is limited to ten states but designed in a manner to represent the food supply nationwide. The number of sampling sites and volume vary by state. Sampling procedures are described at the website, see reference below.

Error Estimate: Uncertainties and other sources of error are minor and not expected to have any significant effect on performance assessment. More information is available on the website (See References).

New/Improved Data or Systems: These are not EPA data; thus improvements are not known in any detail at this time.

References: PDP Annual Reports, <http://www.ams.usda.gov/science/pdp/download.htm>; <http://www.ams.usda.gov/process/>; CFR 40 Part 160; Food Quality Protection Act (FQPA) 1996; <http://www.epahome/Standards.html>; <http://www.ams.usda.gov/science/pdp/SOPs.htm>.

FY 2005 Performance Measures:

- **Number of Tolerance Reassessments issued.**
- **Number of Reregistration Eligibility Decisions (REDs) issued.**
- **Number of Product Reregistration decisions issued.**
- **Tolerance Reassessments for top 20 foods eaten by children**
- **Number of inert ingredients tolerance/tolerance exemptions reassessed.**
- **Reduce decision times for REDs**

Performance Database: The OPPIN (Office of Pesticide Programs Information Network) consolidates various EPA program databases. It is maintained by the EPA and tracks regulatory data submissions and studies, organized

by scientific discipline, which are submitted by the registrant in support of a pesticide's reregistration. Additionally, manual counts of the registrations of reduced risk pesticides are kept as backup and quality control.

Data Source: EPA's Pesticides Program.

Methods, Assumptions and Suitability: The measures are program outputs which represent the program's statutory requirements to ensure that pesticides entering the marketplace are safe for human health and the environment and when used in accordance with the packaging label present a reasonable certainty of no harm. While program outputs are not the best measures of risk reduction, they do provide a means for reducing risk in that the program's safety review prevents dangerous pesticides from entering the marketplace.

QA/QC Procedures: All registration actions must employ sound science and meet the Food Quality Protection Act (FQPA) new safety standard. All risk assessments are subject to public and scientific peer review.

Data Quality Review: Management reviews the program counts and signs off on the decision document.

Data Limitations: None known.

Error Estimate: N/A. There are no errors associated with count data.

New/Improved Data or Systems: The OPPIN, which consolidates various pesticides program databases, will contribute to reducing the processing time for reregistration actions.

References: EPA Website <http://www.epa.gov/pesticides> EPA Annual Report 2002 EPA Number 735-R-03-001; 2003 Annual Performance Plan

FY 2005 Performance Measure: Number of incidents and mortalities to terrestrial and aquatic wildlife caused by the 15 pesticides responsible for the greatest mortality to such wildlife.

Performance Database: The Ecological Incident Information System (EIIS) is a national database of information on poisoning incidents of non-target plants and animals caused by pesticide use. The Environmental Fate and Effects staff for Pesticide Programs maintain this database.

Data Source: Data are extracted from written reports of fish and wildlife incidents submitted to the Agency by pesticide registrants under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), Section 6(a)(2), as well as incident reports voluntarily submitted by state and Federal agencies involved in investigating such incidents.

Methods, Assumptions and Suitability: This measure helps to provide information on the effect of EPA's regulatory actions on the well being of fish and wildlife. The assumption is that the number of incidents and mortalities to fish and wildlife caused by pesticides will decrease when use of those pesticides are curtailed or eliminated.

QA/QC Procedures: EPA employs a process to ensure data quality for this measure which begins before entering an incident into the database. A database program is used to screen for records already in the database with similar locations and dates. Similar records are then individually reviewed to prevent duplicate reporting. After each record is entered into the EIIS database, an incident report is printed that contains all the data entered into the database. A staff member, other than the one who entered the data, then reviews the information in the report and compares it to the original source report to verify data quality. Scientists using the incident database are also encouraged to report any inaccuracies they find in the database for correction.

Data Quality Review: Internally and externally conducted data quality reviews related to data entry are ongoing. EPA follows a quality assurance plan for accurately extracting data from reports and entering it into the EIIS database. This quality assurance plan is described in Appendix D of the Quality Management Plan for pesticides programs. When resources allow incorporation of wildlife data from private organizations, such as the American Bird Conservancy, the new data and EIIS data are reviewed for quality during data entry using the same standards.

Data Limitations: This measure is designed to monitor trends in the numbers of acute poisoning events reported to the Agency. Because the data are obtained, in part, through voluntary reporting, the numbers of reported incidents may not accurately reflect the numbers of actual incidents. Therefore, it is important to consider the possible factors influencing changes in incident reporting rates over time when evaluating this measure.

Error Estimate: Moving average counts of number of incidents per year may be interpreted as a relative index of the frequency of adverse effects that pesticides are causing to fish and wildlife from acute toxicity effects. The indicator numbers are subject to under-reporting, but trends in the numbers over time may indicate if the overall level of adverse acute effects is improving or getting worse. Even so, if there is an increase in bird kills since the baseline year, it may be due to better tracking/reporting of kills rather than an increase or change in use of a pesticide.

New/Improved Data or Systems: The EPA is currently conducting a project with the American Bird Conservancy, reviewing the data in its Avian Incident Monitoring System on bird kill incidents caused by pesticides. These data will be incorporated into the EIIS. The project is expected to improve the quantity and quality of data in the EIIS database on avian incidents.

References: The Ecological Incident Information System (EIIS) is an internal EPA database. Federal Insecticide Fungicide and Rodenticide Act (FIFRA), Section 6(a)(2).

QMP: Quality Management Plan for the Office of Pesticides Program, May 20, 2000

FY 2005 Performance Measures:

- **Number of registrations of reduced risk pesticides registered (Register safer chemicals and biopesticides).**
- **Number of new (active ingredients) conventional pesticides registered (New Chemicals)(Cumulative).**
- **Number of conventional new uses registered (New Uses)(Cumulative).**
- **Number of new uses for previously registered antimicrobial products.**
- **Maintain timeliness of Section 18 Emergency Exemption Decisions.**
- **Reduce registration decision times for reduced risk chemicals**

Performance Database: The OPPIN (Office of Pesticide Programs Information Network) consolidates various pesticides program databases. It is maintained by the EPA and tracks regulatory data submissions and studies, organized by scientific discipline, which are submitted by the registrant in support of a pesticide's registration. Additionally, manual counts of the registrations of reduced risk pesticides are maintained for quality control

Data Source: Pesticide program reviewers update the status of the submissions and studies as they are received and as work is completed by the reviewers. The status indicates whether the application is ready for review, the application is in the process of review, or the review has been completed.

Methods, Assumptions and Suitability: The measures are program outputs which when finalized, represent the program's statutory requirements to ensure: 1) that pesticides entering the marketplace are safe for human health and the environment, and 2) when used in accordance with the packaging label present a reasonable certainty of no harm. While program outputs are not the best measures of risk reduction, they do provide a means for reducing risk, such that the program's safety review prevents dangerous pesticides from entering the marketplace.

QA/QC Procedures: A reduced risk pesticide must meet the criteria set forth in Pesticide Registration Notice 97-3, September 4, 1997. Reduced risk pesticides include those which reduce the risks to human health; reduce the risks to non-target organisms; reduce the potential for contamination of groundwater, surface water or other valued environmental resources; and/or broaden the adoption of integrated pest management strategies, or make such strategies more available or more effective. In addition, biopesticides are generally considered safer (and thus reduced risk). All registration actions must employ sound science and meet the Food Quality Protection Act (FQPA) new safety standard. All risk assessments are subject to public and scientific peer review.

Data Quality Review: These are program outputs. EPA staff and management review the program outputs in accordance with established policy for the registration of reduced-risk pesticides as set forth in Pesticide Regulation Notice 97-3, September 4, 1997.

Data Limitations: None. All required data must be submitted for the risk assessments before the pesticide, including a reduced risk pesticide, is registered. If data are not submitted, the pesticide is not registered. As stated above, a reduced risk pesticide must meet the criteria set forth in PRN 97-3 and all registrations must meet FQPA safety requirements. If a pesticide does not meet these criteria, it is not registered. If an application for a reduced risk pesticide does not meet the reduced risk criteria, it is reviewed as a conventional active ingredient.

Error Estimate: N/A

New/Improved Data or Systems: The OPPIN (Office of Pesticide Programs Information Network), which consolidates various pesticides program databases, will reduce the processing time for registration actions.

References: FIFRA Sec 3(c)(5); FFDCA Sec 408(a)(2); EPA Pesticide Registration Notice 97-3, September 4, 1997; Food Quality Protection Act (FQPA) 1996;

FY 2005 Performance Measure: **Number of children aged 1-5 years with elevated blood lead levels (>10 ug/dL). This is the level that CDC defines as 'elevated' and indicative of the need for intervention.**

Performance Database: Centers for Disease Control and Prevention's (CDC) National Health and Nutrition Examination Survey (NHANES).

Data Source: The National Health and Nutrition Examination Survey is a coordinated program of studies designed to assess the health and nutritional status of adults and children in the U.S. The program began in the early 1960s and continues. The survey examines a nationally representative sample of approximately 5,000 people each year located across the U.S.

Methods, Assumptions, and Suitability: Detailed interview questions cover areas related to demographic, socio-economic, dietary, and health-related questions. The survey also includes an extensive medical and dental examination of participants, physiological measurements, and laboratory tests. Specific laboratory measurements of environmental interest include: heavy metals (lead, cadmium, and mercury), VOC exposures, phthalates, organophosphates (OPs), pesticides and their metabolites, non-persistent pesticides, dioxins/furans and polycyclic aromatic hydrocarbons (PAHs). NHANES is unique in that it links laboratory-derived measurements of exposure (urine, blood etc.) to questionnaire responses and results of physical exams.

CDC has published both the "National Report on Human Exposure to Environmental Chemicals," (March 2001) and the "Second National Report on Human Exposure to Environmental Chemicals" (January 2003), which reflect findings from NHANES, including the body burden of lead and other pollutants measured in the blood stream or urine. These reports provide ongoing surveillance of the U.S. population's exposure to environmental chemicals. The 2001 report provides measurements of exposure to 27 chemicals based on blood and urine samples from people participating in NHANES 1999. The 2003 Report expands the number of chemicals to 100 (in order to include carcinogenic volatile organic compounds, carcinogenic PAHs, dioxins and furans, PCBs, trihalomethanes, haloacetic acids, and carbamate and organochlorine pesticides). Future reports will provide additional details on exposure among different populations -- stratifying results by gender, race/ethnicity, age, urban/rural residence, education level, income, and other characteristics. CDC will track these indicators over time. Data will assist both public health officials and regulators in analyzing: 1) trends over time; 2) the effectiveness of public health efforts; and 3) exposure variations among sub-populations.

QA/QC Procedures: Quality assurance plans are available from both CDC and the contractor, WESTAT, as outlined on the web site <<http://www.cdc.gov/nchs/nhanes.htm>> under the NHANES section.

Data Quality Reviews: CDC follows standardized survey instrument procedures to collect data to promote data quality, and data are subjected to rigorous QA/QC review. CDC/NCHS has an elaborate data quality checking procedure outlined on the web site <<http://www.cdc.gov/nchs/nhanes.htm>> under the NHANES section.

Data Limitations: The NHANES survey uses two steps, a questionnaire and a physical exam. For this reason, there are sometimes different numbers of subjects in the interview and examinations and special weighting techniques are needed. Additionally, the number of records in each data file varies depending on gender and age profiles for the specific components. Demographic information is collected but not available at the highest level of detail in order to protect privacy. Body burden data are evidence of human exposure to toxic substances; however, linkages between evidence of exposure and source of exposure have yet to be made for many substances. In the case of lead, the correlation is strongly documented.

Error Estimate: Because NHANES is based on a complex multi-stage sample design, appropriate sampling weights should be used in analyses to produce national estimates. Several statistical methodologies can be used to account for unequal probability of the selection of sample persons. The methodologies and appropriate weights are

provided at www.cdc.gov/nchs/about/major/nhanes/nhanes3/cdrom/nchs/MANUALS/NH3GUIDE to help generate appropriate error estimates.

New/Improved Data or Systems: NHANES has moved to an annual schedule. The sample design allows for limited estimates to be produced on an annual basis and more detailed estimates to be produced on 3-year samples.

References: "National Report on Human Exposure to Environmental Chemicals," (NCEH Publication Number 01-0164, Atlanta, GA: March 2001), [On the web at <http://www.cdc.gov/nchs/nhanes.htm> or <http://www.cdc.gov/nceh/dls/report/>]; more extensive findings from NHANES are in the "Second National Report on Human Exposure to Environmental Chemicals" (NCEH Publication Number 03-0022: Atlanta, GA January 2003) [On the web at [<http://www.cdc.gov/nchs/nhanes.htm>, or <http://www.cdc.gov/exposurereport/>].

FY 2005 Performance Measure: Reduce the potential for risks from leaks and spills by ensuring the safe disposal of large capacitors and transformers containing polychlorinated biphenyls (PCBs).

Performance Database: PCB Annual Report Database.

Data Source: Annual Reports from commercial storers and disposers of PCB Waste.

Methods, Assumptions, and Suitability: Data provide a baseline for the amount of safe disposal of PCB waste annually. By ensuring safe disposal of PCBs in equipment such as transformers and capacitors coming out of service, and contaminated media such as soil, and structures from remediation activities, the Agency is reducing the exposure risk of PCBs that are either already in the environment or may be released to the environment through spills or leaks.

QA/QC Procedures: The Agency reviews, transcribes, and assembles data into the Annual Report Database.

Data Quality Reviews: The Agency contacts data reporters, when needed, for clarification of data submitted.

Data Limitations: Data limitations include missing submissions from commercial storers and disposers, and inaccurate submissions. PCB-Contaminated Transformers, of PCB concentrations 50 to 499 parts per million (ppm), and those that are 500 ppm PCBs or greater are not distinguished in the data. Similarly, large and small capacitors of PCB waste may not be differentiated. Data are collected for the previous calendar year on July 1 of the next year creating a lag of approximately one year. Despite these limitations, the data do provide the only estimate of the amount of PCB waste disposed annually.

Error Estimate: N/A

New/Improved Data or Systems: None

References: U.S. EPA, Office of Pollution Prevention and Toxics, National Program Chemicals Program, PCB Annual Report for Storage and Disposal of PCB Waste.

FY 2005 Performance Measure: Percent reduction in relative risk index for chronic human health associated with environmental releases of industrial chemicals in commerce as measured by Risk Screening Environmental Indicators (RSEI) Model.

Performance Database: The RSEI Model uses annual reporting from individual industrial facilities along with a variety of other information to evaluate chemical emissions and other waste management activities. RSEI incorporates detailed data from EPA's Toxics Release Inventory (TRI) and Integrated Risk Information System, the U.S. Census, and many other sources. Due to a TRI data lag, performance data will be unavailable for this measure when the FY 2005 Annual Performance Report is prepared. The data will be available for the FY 2007 report.

Data Source: The wide variety of data used within RSEI were collected by Federal Agencies (U.S. Census Bureau, EPA, U.S. Geological Survey, Commerce Dept. – National Oceanographic Atmospheric Administration, Dept. of Interior - U.S. Fish and Wildlife), state agencies (air emissions and stack data, fishing license data), and research organizations (Electric Power Research Institute (EPRI), etc.) for a variety of national/state programmatic and regulatory purposes, and for industry-specific measurements.

Methods, Assumptions and Suitability: The RSEI Model generates unique numerical values known as “Indicator Elements” using the factors pertaining to surrogate dose, toxicity and exposed population. Indicator Elements are unitless (like an index number, they can be compared to one-another but do not reflect *actual* risk), but proportional to the modeled relative risk of each release (incrementally higher numbers reflect greater estimated risk). Indicator Elements are risk-related measures generated for every possible combination of reporting facility, chemical, release medium, and exposure pathway (inhalation or ingestion). Each Indicator Element represents a unique release-exposure event and together these form the building blocks to describe exposure scenarios of interest. These Indicator Elements are summed in various ways to represent the risk-related results for releases users are interested in assessing. RSEI results are for comparative purposes and only meaningful when compared to other scores produced by RSEI. The measure is appropriate for year-to-year comparisons of performance. Depending on how the user wishes to aggregate, RSEI can address trends nationally, regionally, by state or smaller geographic areas.

QA/QC Procedures: EPA annually updates the data sources used within the RSEI model to take advantage of the most recent and reliable data. For example, TRI facilities self-report release data and occasionally make errors. TRI has QC functions and an error-correction mechanism for reporting such mistakes. Because of the unique screening-level abilities of the RSEI model, it is possible to identify other likely reporting errors and these are forwarded to the TRI Program for resolution. In developing the RSEI model, OPPT has performed numerous Q/C checks on various types of data. For instance, locational data for on-site and off-site facilities have been checked and corrected, and this information is being supplied to the Office of Environmental Information (OEI) and the Envirofacts database.

Data Quality Reviews: RSEI depends upon a broad array of data resources, each of which has gone through a quality review process tailored to the specific data and managed by the providers of the data sources. RSEI includes data from the Toxics Release Inventory (TRI), Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST), U.S. Census, etc. All were collected for regulatory or programmatic purposes and are of sufficient quality to be used by EPA, other Federal agencies, and state regulatory agencies. Over the course of its development, RSEI has been the subject of three reviews by EPA’s Science Advisory Board (U.S. EPA Office of Pollution Prevention and Toxics, Risk Screening Environmental Indicators Model, Peer Reviews. Available at <http://www.epa.gov/opptintr/rsei/faqs.html>).

The RSEI model has undergone continuous upgrading since the 1997 SAB Review. Toxicity weighting methodology was completely revised and subject to a second positive review by SAB (in collaboration with EPA’s Civil Rights program); air methodology was revised and ground-truthed using New York data to demonstrate high confidence; water methodology has been revised in collaboration with EPA’s Water program. When the land methodology has been reviewed and revised, EPA will have completed its formal, written response to the 1997 SAB Review.

Data Limitations: RSEI relies on data from a variety of EPA and other sources. TRI data may have errors that are not corrected in the standard TRI QC process. In the past, RSEI has identified some of these errors and corrections have been made by reporting companies. Drinking water intake locations are not available for all intakes nationwide. Where intake locations are known only at the county-level, RSEI distributes the drinking water population between all stream reaches in that county. This could increase or decrease the RSEI risk-related results depending on the pattern of TRI releases on the stream reaches in that county. If the actual uptake location is on a highly polluted stream reach, this approach would underestimate risk by distributing the drinking water population to less-polluted reaches. In coastal areas, Publicly Owned Treatment Works (POTW) water releases may go directly to the ocean, rather than nearby streams. EPA is in the process of systematically correcting potential errors regarding POTW water releases. These examples are illustrative of the data quality checks and methodological improvements that are part of the RSEI development effort. Data sources are updated annually and all RSEI values are recalculated on an annual basis.

Error Estimate: In developing the RSEI methodology, both sensitivity analyses and groundtruthing studies have been used to address model accuracy (documentation is provided on the RSEI Home Page - www.epa.gov/oppt/env_ind/). For example, groundtruthing of the air modeling performed by RSEI compared to site-specific regulatory modeling done by the state of New York showed virtually identical results in both rank order and magnitude. However, the complexity of modeling performed in RSEI, coupled with un-quantified data limitations, limits a precise estimation of errors that may either over- or under-estimate risk-related results.

New/Improved Data or Systems: The program regularly tracks improvements in other Agency databases (e.g., SDWIS and Reach File databases) and incorporates newer data into the RSEI databases. Such improvements can

also lead to methodological modifications in the model. Corrections in TRI reporting data for all previous years are captured by the annual updates of the RSEI model.

References: The methodologies used in RSEI were documented for the 1997 review by the EPA Science Advisory Board. The Agency has provided this and other technical documentation on the RSEI Home Page. The Agency is revising the existing methodology documents concurrent with the second beta release of RSEI Version 2.0. [RSEI Home Page - www.epa.gov/oppt/env_ind/]

U.S. EPA Office of Pollution Prevention and Toxics, Risk Screening Environmental Indicators Model, Peer Reviews. Available at <http://www.epa.gov/opptintr/rsei/faqs.html>

RSEI Methodology Document (describes data and methods used in RSEI Modeling)

RSEI User's Manual (PDF, 1.5 MB) explains all of the functions of the model, the data used, and contains tutorials to walk the new user through common RSEI tasks (http://www.epa.gov/opptintr/rsei/docs/users_manual.pdf).

A more general overview of the model can be found in the RSEI Fact Sheet (PDF, 23 KB) (http://www.epa.gov/opptintr/rsei/docs/factsheet_v2-1.pdf).

There are also seven Technical Appendices that accompany these two documents and provide additional information on the data used in the model. The Appendices are as follows:

Technical Appendix A (PDF, 121 KB) - Listing of All Toxicity Weights for TRI Chemicals and Chemical Categories

Technical Appendix B (PDF, 290 KB) - Physicochemical Properties for TRI Chemicals and Chemical Categories

Technical Appendix C (PDF, 40 KB) - Derivation of Model Exposure Parameters

Technical Appendix D (PDF, 71 KB) - Locational Data for TRI Reporting Facilities and Off-site Facilities

Technical Appendix E (PDF, 44 KB) - Derivation of Stack Parameter Data

Technical Appendix F (PDF, 84KB) - Summary of Differences Between RSEI Data and TRI Public Data Release

FY 2005 Performance Measure: Establish short-term exposure limits for 52 percent of chemicals identified as highest priority by the Acute Exposure Guideline Levels (AEGL) Program.

Performance Database: Performance is measured by the cumulative number of chemicals with “Proposed”, “Interim”, and/or “Final” AEGL values.

Data Source: EPA manages a Federal Advisory Committee Act (FACA) committee that reviews short term exposure values for extremely hazardous chemicals. The supporting data, from both published and unpublished sources and from which the AEGL values are derived, are collected, evaluated, and summarized by FACA Chemical Managers and Oak Ridge National Laboratory’s scientists. Proposed AEGL values are published for public comment in the Federal Register. After reviewing public comment, interim values are presented to the AEGL Subcommittee of the National Academies of Sciences (NAS) for review and comment. After review and comment resolution, the National Research Council under the auspices of the National Academies of Sciences (NAS) publishes the values as final.

Methods, Assumptions, and Suitability: The work of the National Advisory Committee’s Acute Exposure Guideline Levels (NAC/AEGL) adheres to the 1993 U.S. National Research Council/National Academies of Sciences (NRC/NAS) publication *Guidelines for Developing Community Emergency Exposure Levels for Hazardous Substances*. NAC/AEGL, in cooperation with the National Academy of Sciences’ Subcommittee on AEGLs, have developed standard operating procedures (SOPs), which are followed by the program. These have been published by the National Academies Press and are referenced below.

AEGL values approved as “proposed” and “interim” by the NAC/AEGL FACA Committee and “final” by the National Academies of Sciences represent the measure of the performance. The work is assumed to be completed at the time of final approval of the AEGL values by the NAS.

QA/QC Procedures: QA/QC procedures include public comment via the Federal Register process, review and approval by the FACA committee, and review and approval by the NAS/AEGL committee and their external reviewers.

Data Quality Review: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: This is the first time acute exposure values for extremely hazardous chemicals have been established according to a standardized process and put through such a rigorous review.

References: Standing Operating Procedures for Developing Acute Exposure Guideline Levels for Hazardous Chemicals, National Academy Press, Washington, DC 2001 (<http://www.nap.edu/books/030907553X/html/>).

FY 2005 Performance Measure: Number of risk management plan audits completed

Performance Database: There is no database for this measure.

Data Source: EPA's Regional offices and the states provide the data to EPA headquarters.

Methods, Assumptions and Suitability: Data are collected and analyzed by surveying EPA's Regional offices to determine how many audits of facilities' risk management plans (RMPs) have been completed.

QA/QC Procedures: Data are collected from states by EPA's Regional offices, with review at the Regional and Headquarters' levels.

Data Quality Review: Data quality is evaluated by both Regional and Headquarters' personnel.

Data Limitations: Data quality is dependent on completeness and accuracy of the data provided by state programs.

Error Estimate: Not calculated.

New/Improved Data or Systems: N/A

Reference: N/A

STATUTORY AUTHORITIES

1909 Boundary Waters Agreement
1978 U.S./Canada Great Lakes Water Quality Agreement
1989 US/USSR Agreement on Pollution
1991 U.S./Canada Air Quality Agreement
1996 Habitat Agenda, paragraph 43bb
Chemical Safety Information, Site Security and Fuels Regulatory Relief Act
Clean Air Act (CAA)
Clean Water Act (CWA) (33 U.S.C. 1251_1387)
Emergency Planning and Community Right-To-Know Act
Endangered Species Act
Federal Food, Drug and Cosmetic Act (FFDCA)
Federal Fungicide, Insecticide and Rodenticide Act (FIFRA)
Food Quality Protection Act (FQPA) of 1996
North American Agreement on Environmental Cooperation (NAAEC)
North American Free Trade Agreement
Pollution Prevention Act
Resource Conservation and Recovery Act (RCRA)
Section 112r, Accidental Release Provisions of the Clean Air Act Amendments of 1990
Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986
Toxic Substances Control Act (TSCA)
U.S./Canada Agreements on Arctic Cooperation
World Trade Organization Agreements

OBJECTIVE: Communities

Sustain, clean up, and restore communities and the ecological systems that support them.

Resource Summary
(Dollars in Thousands)

| | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | FY 2005 Req. v. FY 2004 Pres Bud |
|------------------------------------|--------------------|-----------------------|-----------------------|-------------------------------------|
| Communities | \$313,167.7 | \$317,572.9 | \$319,958.4 | \$2,385.4 |
| Environmental Program & Management | \$64,392.8 | \$83,379.9 | \$85,676.7 | \$2,296.80 |
| Hazardous Substance Superfund | \$2,324.5 | \$1,031.4 | \$1,039.9 | \$8.50 |
| Science & Technology | \$75.1 | \$0.0 | \$0.0 | \$0.00 |
| State and Tribal Assistance Grants | \$243,985.7 | \$230,500.0 | \$230,500.0 | \$0.00 |
| Building and Facilities | \$744.1 | \$666.8 | \$721.7 | \$54.9 |
| Inspector General | \$1,645.5 | \$1,994.9 | \$2,020.1 | \$25.2 |
| Total Workyears | 327.5 | 372.0 | 369.6 | (2.4) |

Program Project
(Dollars in Thousands)

| | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | FY 2005 Req. v. FY 2004 Pres Bud |
|---|--------------------|-----------------------|-----------------------|-------------------------------------|
| Children and other Sensitive Populations | \$3,074.7 | \$6,710.4 | \$6,801.1 | \$90.7 |
| Congressionally Mandated Projects | \$140.8 | \$0.0 | \$0.0 | \$0.0 |
| Commission for Environmental Cooperation | \$4,069.6 | \$3,544.0 | \$3,531.7 | (\$12.3) |
| Categorical Grant: Brownfields | \$48,605.7 | \$60,000.0 | \$60,000.0 | \$0.0 |
| Brownfields | \$22,613.4 | \$27,820.6 | \$28,002.3 | \$181.7 |
| Environment and Trade | \$1,769.6 | \$1,702.6 | \$1,723.1 | \$20.5 |
| Environmental Justice | \$3,813.9 | \$5,044.3 | \$5,130.5 | \$86.2 |
| Geographic Program: Other | \$0.0 | \$0.0 | \$2,000.0 | \$2,000.0 |
| Infrastructure Assistance: Brownfields Projects | \$81,953.4 | \$120,500.0 | \$120,500.0 | \$0.0 |
| Infrastructure Assistance: Mexico Border | \$113,426.6 | \$50,000.0 | \$50,000.0 | \$0.0 |
| Regulatory Innovation | \$6,724.4 | \$2,541.2 | \$2,642.7 | \$101.5 |
| US Mexico Border | \$4,967.7 | \$6,484.4 | \$5,784.8 | (\$699.6) |
| Regional Geographic Initiatives | \$0.0 | \$8,755.7 | \$8,799.5 | \$43.8 |
| Administrative Projects | \$22,007.9 | \$24,469.7 | \$25,042.7 | \$572.9 |
| TOTAL | \$313,167.7 | \$317,572.9 | \$319,958.4 | \$2,385.4 |

ANNUAL PERFORMANCE GOALS AND MEASURES**GOAL: HEALTHY COMMUNITIES AND ECOSYSTEMS****OBJECTIVE: COMMUNITY HEALTH****Annual Performance Goals and Measures****U.S. - Mexico Border Water/Wastewater Infrastructure**

| | |
|---------|---|
| In 2005 | In the US-Mexico Border Region, sustain and restore community health, and preserve the ecological systems that support them |
| In 2004 | Increase the number of residents in the Mexico border area who are protected from health risks, beach pollution and damaged ecosystems from nonexistent and failing water and wastewater treatment infrastructure by providing improved water and wastewater service. |
| In 2003 | Increase the number of residents in the Mexico border area who are protected from health risks, beach pollution and damaged ecosystems from nonexistent and failing water and wastewater treatment infrastructure by providing improved water and wastewater service. |

| | | | | |
|--|--------------------|-----------------------|-----------------------------------|--------|
| Performance Measures: | FY 2003 Enacted | FY 2004 Pres. Bud. | FY 2005 Request 1.5 Million | People |
| People in the Mexico border area protected from health risks because of adequate water and wastewater sanitation systems funded through the Border Environmental Infrastructure Fund. | | | | |
| Number of additional people in Mexico border area protected from health risks, because of adequate water & wastewater sanitation systems funded through border environmental infrastructure funding. | 900,000 | 990,000 | | People |

Baseline: The US-Mexico border region extends more than 3,100 kilometers (2,000 miles) from the Gulf of Mexico to the Pacific Ocean, and 62.5 miles on each side of the international border. More than 11.8 million people reside along the border and this figure is expected to increase to 19.4 million by 2020. Ninety percent of the population reside in the 14 impaired, interdependent sister cities. Rapid population growth in urban areas has resulted in unplanned development, greater demand for land and energy, increased traffic congestion, increased waste generation, overburdened or unavailable waste treatment and disposal facilities, and more frequent chemical emergencies. Rural areas suffer from exposure to airborne dust, pesticide use, and inadequate water supply and treatment facilities. EPA, other US Federal agencies, and the Government of Mexico have partnered to address these environmental problems.

World Trade Organization - Regulatory System

In 2005 Assist trade partner countries in completing environmental reviews

| | | | | |
|--|--------------------|-----------------------|-------------------------|-----------|
| Performance Measures: | FY 2003 Enacted | FY 2004 Pres. Bud. | FY 2005 Request 3 | Countries |
| Number of environmental reviews initiated by FTAA countries following the enactment of the 2002 Trade Promotion Act (TPA). | | | | |

Baseline: As of the end of FY 2003, two environmental reviews (Chile and Singapore) have been initiated since the enactment of the 2002 Trade Promotion Act.

Revitalize Properties

| | |
|---------|--|
| In 2005 | Leverage jobs by assessing, promoting the cleanup and reuse of brownfields properties. |
| In 2004 | Leverage jobs through revitalization efforts. |
| In 2004 | Leverage or generate funds through revitalization efforts. |
| In 2004 | Make Brownfields property acres available for reuse or continued use. |
| In 2003 | Leverage jobs through revitalization efforts. |
| In 2003 | Leverage or generate \$0.9 B through revitalization efforts. |

| Performance Measures: | FY 2003 Enacted 472 (qtr 3) | FY 2004 Pres. Bud. 1,000 | FY 2005 Request 1,000 | |
|---|-----------------------------------|--------------------------------|-----------------------------|-----------------|
| Number of Brownfields properties assessed. | | | | assessments |
| Number of Brownfields cleanup grants awarded. | | 25 | 25 | grants |
| Number of properties cleaned up using Brownfields funding. | | no target | 60 | properties |
| Estimated number of Brownfield property acres available for reuse or continued use. | | no target | no target | acres |
| Number of jobs leveraged from Brownfields activities. | 1,202 (qtr 3) | 2,000 | 5,000 | jobs |
| Number of Brownfields job training participants trained. | | 200 | 200 | participants |
| Percentage of Brownfields job training trainees placed. | 62% (qtr 3) | 65% | 65% | trainees placed |
| Amount of cleanup and redevelopment funds leveraged at Brownfields sites. | \$0.3B (qtr 3) | \$0.9B | \$1.0B | funds |
| Number of Tribes supported by Brownfields cooperative agreements. | | | no target | Tribes |

Baseline: By the end of FY 2002, the Brownfields program had leveraged 19,646 jobs, provided job training to 913 individuals, placed an average of 65% of job training participants, and leveraged a total of \$6.7 billion. Data reported for FY 2002 reflect accomplishments up to the 3rd quarter of FY 2002.

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Performance Measure:

- Number of Brownfields properties assessed.
- Number of jobs leveraged from Brownfields activities.
- Number of properties cleaned up using Brownfields funding.
- Percentage of Brownfields job training trainees placed.
- Amount of cleanup and redevelopment funds leveraged at Brownfields sites.

Performance Database: The Brownfields Management System (BMS) contains the performance information identified in the above measures.

Key fields related to performance measures include:

AP 5 - Number of Properties with Assessment Completed with Pilot Funding
 AP 11 - Number of Cleanup/Construction Jobs Leveraged
 AP 12 - Number of Cleanup Dollars Leveraged
 AP 13 - Number of Redevelopment Jobs Leveraged
 AP 14 - Number of Redevelopment/Construction Dollars Leveraged
 JT 2 - Number of Participants Completing Training
 JT 3 - Number of Participants Obtaining Employment
 RLF - Number of Properties with cleanup activities completed using Brownfields Cleanup Revolving Loan Fund funds.

Data Source: Data are extracted from quarterly reports prepared by Cooperative Agreement Award Recipients

Methods, Assumptions and Sustainability: Cooperative Agreement Award Recipients submit reports quarterly on project progress. Data on performance measures are extracted from quarterly reports by an EPA contractor. Afterwards, data are forwarded to Regional Pilot managers for review and finalization.

“Number of jobs leveraged from Brownfields activities” is the aggregate of the “Number of redevelopment jobs leveraged” and the “Number of cleanup/construction jobs leveraged.” “Amount of cleanup and redevelopment funds leveraged at Brownfields sites” is the aggregate of “Number of Cleanup Dollars Leveraged” and the “Number of Redevelopment/Construction Dollars Leveraged.” “Percentage of Brownfields job training trainees placed” based on the “Number of Participants Completing Training” and the “Number of Participants Obtaining Employment.”

“Number of properties cleaned up using Brownfields funding” is the aggregate of “Number of Properties with cleanup activities completed using BCRLF funds” and the number of properties cleaned up using cleanup grant funding (to be included in amended database. See “New and Improved Data or Systems”).

QA/QC Procedures: Data reported by cooperative award agreement recipients are reviewed by EPA Regional pilot managers for accuracy and to ensure appropriate interpretation of key measure definitions. Reports are produced monthly with detailed data trends analysis.

Data Quality Reviews: No external reviews.

Data Limitations: All data provided voluntarily.

Error Estimate: NA

New/Improved Data or Systems: The Brownfields Management System (BMS) has been migrated to an oracle platform and is currently being modified to include all reporting elements required in grantee terms and conditions. Key field definitions will be updated.

References: NA

FY 2005 Performance Measure: People in the Mexico border area connected to potable water and wastewater collection and treatment systems (cumulative).

Performance Database: No formal EPA database. Performance is tracked and reported quarterly by Border Environment Cooperation Commission (BECC) and North American Development Bank (NADBank). Data field is A population –served by potable water and wastewater collection and treatment systems.

Data Source: 1) U.S. population figures from the 2000 U.S. Census [**Reference A, below**]; 2) Data on U.S. and Mexican populations served by A certified@ water/wastewater treatment improvements from the BECC; 3) Data on projects funded from the NADBank.

Methods, Assumptions and Suitability: Summation of population from BECC and NADBank. U.S. Census data are assumed to be correct and suitable.

QA/QC Procedures: EPA Headquarters is responsible for evaluation of reports from BECC and NADBank on drinking water and wastewater sanitation projects. Regional representatives attend meetings of the certifying and financing entities for border projects (BECC and NADBank) and conduct site visits of projects underway to ensure the accuracy of information reported. [**Reference B**]

Data Quality Review: Regional representatives attend meetings of the certifying and financing entities for border projects (BECC and NADBank) and conduct site visits of projects underway to ensure the accuracy of information reported.

Data Limitations: None

Error Estimate: Same as census data.

New/Improved Data or Systems: None.

References:

A. U.S. Department of Commerce, Bureau of the Census, (Washington, DC: U.S. Department of Commerce, 1990). *Instituto Nacional de Estadística, Geografía y Informática, Aguascalientes*, Total Population by State (1990).

B. Border Environment Cooperation Commission (BECC), Cd Juarez, Chih, and North American Development Bank (NADBank), (San Antonio, TX, 2002).

FY 2005 External Performance Measure: Assist trade partner countries in completing environmental reviews.**Performance Database:** None- Manual Collection**Data Source:** Project / Trade Agreement Specific**QA/QC Procedures:** Verification does not involve any pollutant database analysis, but will require objective assessment of: (1) tasks completed, (2) compliance with new regulation, and (3) progress toward project goals and objectives.

Validating measurements under international programs presents several challenges. Technical assistance projects, for instance, typically target developing countries, which often do not have sound data collection and analysis systems in place. Non-technical projects, such as assistance in regulatory reform, frequently must rely on more subjective measures of change, such as the opinions of project staff or reviews by third-party organizations, including other U.S. government organizations, in judging the long-term efficacy of the assistance provided.

EPA works with its trading partners on capacity building projects, which establish the framework and tools to ensure increased trade does not degrade the environment and harm human health. Projects will help prevent pollution at the source, and will be tailored to partner-country needs and be built on past US assistance. Tracking development and implementation of these projects presents few challenges because EPA project staff maintains close contact with their counterparts and any changes become part of a public record. Assessing the effectiveness of these projects or the inclusion of environmental provisions in trade agreements is more subjective. Aside from feedback from Agency project staff, EPA relies, in part, on feedback from its trading partners in the target countries and regions and from non-governmental organizations (NGOs) and other third parties. Because EPA works to establish long-term relationships with its trading partners, the Agency is often able to assess environmental improvements in these countries and regions for a number of years following implementation of the trade agreement.

STATUTORY AUTHORITIES

Annual Appropriations Act

Clean Air Act

Clean Water Act

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Small Business Liability Relief and Brownfields Revitalization Act (SBLRBRA) (Public Law 107-118).

Computer Security Act

Congressional Review Act

Congressional Review Act

Contract law

CPRKA of 1986

Emergency Planning and Community Right-to-Know Act (EPCRA) section 313 (42 U.S.C. 110001-11050)

Emergency Planning and Community Right-to-Know Act (EPCRA) section 313 (42 U.S.C. 110001-11050)

Enterprise for the Americas Initiative Act (7 U.S.C. 5404)

Environmental Research, Development, and Demonstration Act (ERDDA) of 1981

EPA's Assistance Regulations

EPA's Environmental Statues

Executive Order 12866

Executive Order 12915 - Federal Implementation of the North American Agreement on Environmental Cooperation

Executive Order 12916 - Implementation of the Border Environment Cooperation Commission and the North

American Development Bank Plain Language Executive Order

Executive Order 13148, "Greening the Government through Leadership in Environmental Management"

Federal Acquisition Regulations

Federal Advisory Committee Act (FACA) (5 U.S.C. App.)

Federal Food, Drug and Cosmetic Act (FFDCA)

Federal Grant and Cooperative Agreement Act

Federal Insecticide, Fungicide, and Rodenticide Act

Federal Managers Financial Integrity Act (FMFIA)
Food Quality Protection Act (FQPA)
Freedom of Information Act (FOIA) (5 U.S.C. 552)
Government Management Reform Act (1990)
Government Paperwork Elimination Act (GPEA)
National Environmental Education Act
National Environmental Policy Act
North American Agreement on Environmental Cooperation
North American Agreement on Environmental Cooperation
North American Free Trade Agreement
Paperwork Reduction Act Amendment of 1995 (44 U.S.C. 3501-3520)
Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)
PPA (42 U.S.C. 13101-13109)
Privacy Act
Regulatory Flexibility Act
Resource Conservation and Recovery Act (RCRA) 8001.
Safe Drinking Water Act
Small Business Regulatory Enforcement Fairness Act
Toxic Substance Control Act section 14 (TSCA) (15 U.S.C. 2601-2692)
Toxic Substances Control Act
Trade Act of 2002 (TPA)
Unfunded Mandates Reform Act
World Trade Organization Agreements

OBJECTIVE: Ecosystems

Protect, sustain, and restore the health of natural habitats and ecosystems.

Resource Summary
(Dollars in Thousands)

| | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | FY 2005 Req. v. FY 2004 Pres Bud |
|------------------------------------|----------------------------|-------------------------------|-------------------------------|---|
| Ecosystems | \$171,169.4 | \$160,698.1 | \$200,844.5 | \$40,146.5 |
| Environmental Program & Management | \$142,880.5 | \$119,336.0 | \$154,173.6 | \$34,837.6 |
| Buildings & Facilities | \$325.5 | \$386.5 | \$422.6 | \$36.1 |
| State & Tribal Assistance Grants | \$27,146.2 | \$40,000.0 | \$45,000.0 | \$5,000.0 |
| Inspector General | \$817.2 | \$975.6 | \$1248.4 | \$272.8 |
| Total Workyears | 546.0 | 384.8 | 390.8 | 5.9 |

Program Project
(Dollars in Thousands)

| | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | FY 2005 Req. v. FY 2004 Pres Bud |
|---|----------------------------|-------------------------------|-------------------------------|---|
| Congressionally Mandated Projects | \$16,157.3 | \$0.0 | \$0.0 | \$0.0 |
| Geographic Program: Other | \$5,731.7 | \$4,762.5 | \$4,789.7 | \$27.2 |
| Regional Geographic Initiatives | \$6,855.9 | \$0.0 | \$0.0 | \$0.0 |
| Categorical Grant: Wetlands Program Development | \$14,206.2 | \$20,000.0 | \$20,000.0 | \$0.0 |
| Categorical Grant: Targeted Watersheds | \$12,940.0 | \$20,000.0 | \$25,000.0 | \$5,000.0 |
| Geographic Program: Chesapeake Bay | \$21,755.2 | \$20,777.7 | \$20,816.6 | \$38.9 |
| Geographic Program: Great Lakes | \$16,810.7 | \$18,104.2 | \$21,194.8 | \$3,090.6 |
| Geographic Program: Gulf of Mexico | \$4,383.0 | \$4,431.7 | \$4,477.8 | \$46.1 |
| Geographic Program: Lake Champlain | \$2,666.6 | \$954.8 | \$954.8 | \$0.0 |
| Geographic Program: Long Island Sound | \$2,225.5 | \$477.4 | \$477.4 | \$0.0 |
| Great Lakes Legacy Act | \$0.0 | \$15,000.0 | \$45,000.0 | \$30,000.0 |
| National Estuary Program / Coastal Waterways | \$22,712.0 | \$19,094.2 | \$19,229.3 | \$135.1 |
| Wetlands | \$17,129.2 | \$19,299.9 | \$19,752.8 | \$452.9 |
| Administrative Projects | \$27,596.1 | \$17,795.7 | \$19,151.3 | \$1,355.7 |
| TOTAL | \$171,169.4 | \$160,698.1 | \$200,844.5 | \$40,146.5 |

ANNUAL PERFORMANCE GOALS AND MEASURES**GOAL: HEALTHY COMMUNITIES AND ECOSYSTEMS****OBJECTIVE: ECOSYSTEMS****Protecting and Enhancing Estuaries**

In 2005 Working with NEP partners, protect or restore an additional 25,000 acres of habitat within the study areas for the 28 estuaries that are part of the National Estuary Program (NEP).

In 2004 Restore and protect estuaries through the implementation of Comprehensive Conservation and Management Plans (CCMPs).

In 2003 Restored and protected estuaries through the implementation of Comprehensive Conservation and Management Plans (CCMPs).

| | | | | |
|---|--------------------|-----------------------|-----------------------|-------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| Acres of habitat restored and protected nationwide as part of the National Estuary Program. (incremental) | 118,171 | 25,000 | 25,000 | Acres |

Baseline: As of January 2000, there were over 600,000 acres of habitat preserved, restored, and/or created.

Gulf of Mexico

In 2005 Prevent water pollution and protect aquatic species in order to improve the health of the Gulf of Mexico.

In 2004 Assist the Gulf States in implementing watershed restoration actions in 14 priority impaired coastal river and estuary segments.

In 2003 Assisted the Gulf States in implementing watershed restoration actions in 14 priority impaired coastal river and estuary segments.

| | | | | |
|--|--------------------|-----------------------|-----------------------|----------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| Impaired Gulf coastal river and estuary segments implementing watershed restoration actions (incremental). | 95 | 71/5 yr rollavg | | Segments |
| Reduce releases of nutrients throughout the Mississippi River Basin that affect the size of the hypoxic zone in the Gulf of Mexico, as measured by the five year running average | | | Less than 14,128 | KM2 |

Baseline: There are 95 coastal watersheds at the 8-digit hydrologic unit code (HUC) scale on the Gulf coast. The Gulf of Mexico Program has identified 12 priority coastal areas for assistance. These 12 areas include 30 of the 95 coastal watersheds. Within the 30 priority watersheds, the Gulf States have identified 354 segments that are impaired and not meeting full designated uses under the States' water quality standards. The 1996-2000 running average size = 14,128 km2.

Wetland and River Corridor Projects

In 2005 Working with partners, achieve a no net loss of wetlands.

| | | | | |
|--|--------------------|-----------------------|-----------------------|-------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| Annually, in partnership with the Corps of Engineers and States, achieve no net loss of wetlands in the Clean Water Act section 404 regulatory program | | | No Net Loss | Acres |
| Working with partners, achieve no net loss of wetland acres | | | No Net Loss | Acres |

Baseline: Annual net loss of an estimated 58,500 acres. In partnership with the Corps of Engineers, a baseline and initial reporting will begin in FY 2004 on net loss of wetlands in the CWA Section 404 regulatory programs.

Great Lakes Assessment and Implementation Actions

In 2005 Prevent water pollution and protect aquatic systems so that overall ecosystem health of the Great Lakes is improved by at least 1 point.

In 2004 Great Lakes ecosystem components will improve, including progress on fish contaminants, beach closures, air toxics, and trophic status.

In 2003 End of year data will be available in 2004 to verify that Great Lakes ecosystem components have improved, including progress on fish contaminants, beach closures, air toxics, and trophic status.

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. Data Lag | FY 2005 Pres. Bud. 5% | |
|--|--------------------|-----------------------------------|-----------------------------|-----------------|
| Long-term concentration trends of toxics (PCBs) in Great Lakes top predator fish. | | | | Annual decrease |
| Long-term concentration trends of toxic chemicals in the air. | | Data Lag | 7% | Annual decrease |
| Total phosphorus concentrations (long-term) in the Lake Erie Central Basin. | | 18.4 | 10 | Ug/l |
| Average concentrations of PCBs in whole lake trout and walleye samples will decline. | | | 5% | Annual Decrease |
| Average concentrations of toxic chemicals in the air in the Great Lakes basin will decline | | | 5% | Annual Decrease |
| Restore and delist Areas of Concern (AOCs) within the Great Lakes basin | | | 3 | AOC |
| Cubic yards (in millions) of contaminated sediment remediated in the Great Lakes (cumulative from 1997). | | | 2.9 | Cubic Yards/M |

Baseline: In 2003, Great Lakes rating of 20 on a 40 point scale where the rating uses select Great Lakes State of the Lakes Ecosystem indicators based on a 1 to 5 rating system for each indicator, where 1 is poor and 5 is good. The trend (starting with 1972 data) for toxics in Great Lakes top predator fish is expected to be less than 2 parts per million (the FDA action level) but far above the Great Lakes Initiative target or levels at which fish advisories can be removed. The trend (starting with 1992 data) for PCB concentrations in the air is expected to range from 50 to 250 picograms per cubic meter. In 2002, no Areas of Concern had been delisted. 2.1 million yards of remediated sediments are the cumulative number of yards from 1997 - 2001.

Chesapeake Bay Habitat

In 2005 Prevent water pollution and protect aquatic systems so that overall aquatic system health of the Chesapeake Bay is improved enough so that there are 91,000 acres of submerged aquatic vegetation. (cumulative)

In 2005 Reduce nitrogen loads by 74 million pounds per year; phosphorus loads by 8.7 million pounds per year, and sediment loads by 1.06 million tons per year from entering the Chesapeake Bay, from 1985 levels

In 2004 Improve habitat in the Chesapeake Bay.

In 2003 Improved habitat in the Chesapeake Bay.

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. 74/8.7/1.06 | |
|---|--------------------|-----------------------|--------------------------------------|--------------|
| Reduction, from 1985 levels, of nitrogen (M/lbs), phosphorus (M/lbs), and sediment loads (tons) entering Chesapeake Bay. (cumulative) | | | | Lbs/Lbs/Tons |
| Acres of submerged aquatic vegetation (SAV) present in the Chesapeake Bay. (cumulative) | 89,659 | 90,000 | 91,000 | Acres |

Baseline: In 1984, there were 37,000 acres of submerged aquatic vegetation in the Chesapeake Bay. In 2002, baseline for nitrogen loads was 51 million pounds per year; phosphorus loads was 8.0 million pounds per year; and sediment loads was 0.8 million tons per year.

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Performance Measure: Acres of habitat restored and protected nationwide as part of the National Estuary Program (NEP).

Performance Database: The Office of Wetlands Oceans and Watersheds has developed a standardized format for data reporting and compilation, defining habitat protection and restoration activities and specifying habitat categories. We have also designed a web page that, in an educational fashion with graphics and images, highlights habitat loss/alteration, as well as, the number of habitat acres protected and restored by habitat type, based on specific NEP reports. This enables EPA to provide a visual means of communicating NEP performance and habitat protection and restoration progress to a wide range of stakeholders and decision-makers.

Data Source: NEP documents such as annual work plans (which contain achievements made in the previous year) and annual progress reports are used, along with other implementation tracking materials, to document the number of acres of habitat restored and protected. EPA then aggregates the data provided by each NEP to arrive at a national total for the entire Program. EPA is confident that the data presented are as accurate as possible, based on review and inspection by each NEP prior to reporting to EPA. In addition, EPA conducts regular reviews of NEP implementation to help ensure that information provided in these documents is generally accurate, and progress reported is in fact being achieved.

Methods, Assumptions and Suitability: Measuring the number of acres of habitat restored and protected may not directly correlate to improvements in the health of the habitat reported, or of the estuary overall, but it is a suitable measure of on-the-ground progress. We recognize that habitat acreage does not necessarily correspond one-to-one with habitat quality, nor does habitat (quantity or quality) represent the only indicator of ecosystem health. Nevertheless, habitat acreage serves as an adequate surrogate, and is a suitable measure of on-the-ground progress made toward EPA's annual performance goal of habitat protection and restoration in the NEP.

QA/QC Procedures: Primary data are prepared by the staff of the NEP based on their own reports and from data supplied by other partnering agencies/organizations (that are responsible for implementing the action resulting in habitat protection and restoration). The NEP staff is requested to follow guidance provided by EPA to prepare their reports, and to verify the numbers. EPA then confirms that the national total accurately reflects the information submitted by each program. The Office of Water Quality Management Plan (QMP), renewed every five years, was approved in July 2001. EPA requires that each organization prepare a document called a quality management plan (QMP) that: documents the organization's quality policy; describes its quality system; and identifies the environmental programs to which the quality system applies (e.g., those programs that involves the collection or use of environmental data.)

Data Quality Review: No audits or quality reviews conducted yet.

Data Limitations: It is still early to determine the full extent of data limitations. Current data limitations include: information that may be reported inconsistently (based on different interpretations of the protection and restoration definitions), acreage that may be miscalculated or misreported, and acreage that may be double counted (same parcel may also be counted by partnering/implementing agency or need to be replanted multiple years). In addition, measuring the number of acres of habitat restored and protected may not directly correlate to improvements in the health of the habitat reported (particularly in the year of reporting), but is rather a measure of on-the-ground progress made by the NEPs.

Error Estimate: No error estimate is available for this data.

New/Improved Data or Systems: We are examining the possibility of geo-referencing the data in a geographic information system (GIS).

References: Aggregate national and regional data for this measurement, as well as data submitted by the individual National Estuary Programs, is displayed numerically, graphically, and by habitat type in the Performance Indicators Visualization and Outreach Tool (PIVOT). PIVOT data is publicly available at <http://www.epa.gov/owow/estuaries/pivot/overview/intro.htm>. The Office of Water Quality Management Plan (July 2001) is available on the Intranet at <http://intranet.epa.gov/ow/infopolicy.html>.

FY 2005 Performance Measure: Annually, beginning in FY04 and in partnership with the Corps of Engineers and states, achieve no net loss of wetlands in the Clean Water Act Section 404 regulatory program.

Performance Database: Since 1989, the goal of the Clean Water Act Section 404 program has been no net loss of wetlands.

Historically, the Corps has collected limited data on wetlands losses and gains in its RAMS permit tracking database. The Corps has compiled national Section 404 wetland permitting data for the last 10 years reflecting wetland acres avoided (through the permit process), permitted for impacts, and mitigated.

Corps national data for the last 10 years (1993-2002):

- 44,000 acres mitigated/year
- 6,000 acres avoided/year

= Total of 50,000 acres/year of wetlands offset or preserved while allowing for development activities (approximately 24,000 acres of impacts authorized per year).

Data Source: Data included in RAMS is generally collected by private consultants hired by permit applicants or Corps Regulatory Staff. Data input is generally done by Corps staff.

Methods, Assumptions and Suitability: RAMS was designed to be an administrative aid in tracking permits, thus it lacks many of the fields necessary to adequately track important information regarding wetland losses and gains. Also, the database was modified differently for each of the 38 Corps Districts making national summaries difficult. Furthermore, the database is also proprietary making it difficult to retrofit without utilizing its original developers.

QA/QC Procedures: Historically, there has not been a high level of QA/QC with regard to data input into RAMS. Its antiquated format and numerous administrative fields discourage use. Lack of standard terms and classification also make all aspects of data entry problematic.

Data Quality Reviews: Independent evaluations published in 2001 by the National Academy of Sciences (NAS) and the General Accounting Office (GAO) provided a critical evaluation of the effectiveness of wetlands compensatory mitigation (the restoration, creation, or enhancement of wetlands to compensate for permitted wetland losses) for authorized losses of wetlands and other waters under Section 404 of the Clean Water Act. The NAS determined that available data was insufficient to determine whether or not the Section 404 program was meeting its goal of no net loss of either wetland area or function. The NAS added that available data suggested that the program was not meeting its no net loss goal. Among its suite of recommendations, the NAS noted that wetland area and function lost and regained over time should be tracked in a national database and that the Corps should expand and improve quality assurance measures for data entry.

In response to the NAS, GAO, and other recent critiques of the effectiveness of wetlands compensatory mitigation, EPA and the Corps in conjunction with the Departments of Agriculture, Commerce, Interior, and Transportation released the National Wetlands Mitigation Action Plan on December 26, 2002. The Plan includes 17 tasks that the agencies will complete over the next three years to improve the ecological performance and results of compensatory mitigation.

One of the major goals articulated in the 2002 interagency National Wetlands Mitigation Action Plan (MAP) is improving data collection and availability (including tracking and reporting on acreage and function gains and losses). MAP includes three action items the agencies will complete over the next two years that will improve their ability to track and report on wetlands gains and losses. Additional details of the milestones shown below are contained in the MAP: <http://www.epa.gov/owow/wetlands/guidance/index.html#mitigation>.

- The Corps, EPA, USDA, DOI, and NOAA, in conjunction with states and Tribes, compiling and disseminating information regarding existing mitigation-tracking database systems in FY04.
- Building upon the analysis of existing mitigation data base systems, the Corps, EPA, USDA, DOI, and NOAA will establish a shared mitigation database by FY05.
- Utilizing the shared database, the Corps, in conjunction with EPA, USDA, DOI, and NOAA, will provide an annual public report card on compensatory mitigation to complement reporting of other wetlands programs by FY05.

Data Limitations: As previously noted, RAMS currently provides the only national data on wetlands losses and gains in the Section 404 Program. Also, as previously noted, there are a number of concerns regarding the conclusions that can be drawn from these numbers. Data quality issues include:

1. Inability to separate restoration, creation, enhancement and preservation acreage from the aggregate "mitigation" acreage reported
2. Lack of data regarding how much designated mitigation acreage was actually undertaken, and how much of that total was successful

3. Lack of data regarding how much of the permitted impacts actually occurred, and
4. Limitations on identifying acres “avoided,” as the figure is only based on the difference between original proposed impacts and impacts authorized. Often, permit applicants who are aware of the 404 program’s requirements to avoid and minimize impacts to wetlands, make initial site selection and site design decisions that minimize wetland impacts prior to submitting a permit application. Such avoidance decisions benefit applicants, as their applications are more likely to be accepted and processed with minor changes. This behavioral influence that the program engenders is difficult to capture and quantify, but contributes considerable undocumented “avoided” impacts.

Error Estimate: Not applicable

New/Improved Data or Systems: The EPA and the Corps have acknowledged the need for improved 404 tracking. Corps is currently piloting a new national permit tracking database called ORM to replace its existing database (RAMS). As part of the MAP, the Corps is working with EPA and the other Federal agencies and states to ensure that the version of ORM that is ultimately deployed will adequately track wetlands gains and losses. ORM is being designed to provide improved tracking regarding:

- Type of impacts
- Type of habitat impacted (Using Hydrogeomorphic and Cowardin classification systems)
- Type of habitat mitigated (Using Hydrogeomorphic and Cowardin classification systems)
- Type of mitigation (restoration, creation, enhancement, or preservation)
- Amount of mitigation by type
- Differentiate stream mitigation (in linear feet) from wetlands mitigation (in acres)
- Spatial tracking via GIS for both impact and mitigation sites (*planned*)

References:

<http://www.epa.gov/owow/wetlands/guidance/index.html#mitigation>

FY 2005 Performance Measure: Prevent water pollution and protect aquatic ecosystems so that overall ecosystem health of the Great Lakes is improved.

Performance Database: US EPA’s Great Lakes National Program Office (GLNPO) will collect and track the components of the index and publish the performance results as part of annual reporting under the Government Performance and Results Act (GPRA) and as online reporting of GLNPO’s monitoring program, <http://epa.gov/glnpo/glindicators/index.html>. Extensive databases for the indicator components are maintained by GLNPO (phosphorus concentrations, contaminated sediments, benthic health, fish tissue contamination), by binational agreement with Environment Canada (air toxics deposition) or other entities (coastal wetlands), and by local authorities who provide data to EPA (drinking water quality, beach closures).

Data Source: Data for the index components are tracked internally and reported at the State of the Lakes Ecosystem Conferences (SOLEC). The document, “Implementing Indicators 2003-A Technical Report,” presents detailed indicator reports as prepared by primary authors (attending the conference), including references to data sources found in the summary document.

Methods, Assumptions, and Suitability: The Index is based on a 40 point scale where the rating uses select Great Lakes State of the Lakes Ecosystem indicators (i.e., coastal wetlands, phosphorus concentrations, Areas of Concern (AOC), sediment contamination, benthic health, fish tissue contamination, beach closures, drinking water quality, and air toxics deposition). Each component of the Index is based on a 1 to 5 rating system, where 1 is poor and 5 is good. Authors of SOLEC indicator reports use best professional judgment to assess the overall status of the ecosystem component in relation to established endpoints or ecosystem objectives, when available. Each of the index components is included in the broader suite of Great Lakes indicators, which was developed through an extensive multi-agency process to satisfy the overall criteria of necessary, sufficient and feasible. Information on the selection process is in the document, “Selection of Indicators for Great Lakes Basin Ecosystem Health, Version 4.”

QA/QC Procedures: GLNPO has an approved Quality Management system in place¹ that conforms to the EPA quality management order and is audited every 3 years in accordance with Federal policy for Quality Management.

Data Quality Review: GLNPO's quality management system has been given "outstanding" evaluations in previous peer and management reviews². GLNPO has implemented all recommendations from these external audits and complies with Agency Quality standards.

Data Limitations: Data limitations vary among the indicator components of the Index. The data are especially good for phosphorus concentrations, fish tissue contamination, benthic health, and air toxics deposition. The data associated with other components of the index (coastal wetlands, AOC sediment contamination, beach closures, and drinking water quality) are more qualitative. Some are distributed among several sources, and without an extensive trend line. Limitations for each of the index components are included in the formal indicator descriptions in the document, "Selection of Indicators for Great Lakes Basin Ecosystem Health, Version 4."

Error Estimate:

Error statistics for the Great Lakes Index have not been quantified. Each unit of the 40 point scale represents 2.5% of the total, so any unit change in the assessment of one of the component indicators would result in a change of the index of that magnitude. The degree of environmental change required to affect an indicator assessment, however, may be significantly large.

New/Improved Data or Systems: The data system specifically for this index is being developed. Data continue to be collected through the SOLEC process by various agencies, including GLNPO. Efforts are currently in progress to integrate various Great Lakes monitoring programs to better meet SOLEC objectives and to increase efficiencies in data collection and reporting.

References:

1. "Quality Management Plan for the Great Lakes National Program Office." EPA905-R-02-009. October 2002, Approved April 2003.
2. "GLNPO Management Systems Review of 1999." Unpublished - in USEPA Great Lakes National Program Office files.
3. Canada and the United States. "State of the Great Lakes 2003." ISBN 0-662-34798-6, Environment Canada, Burlington, Ontario, Cat. No. En40-11/35-2003E, and U.S.
4. Environmental Protection Agency, Chicago, EPA 905-R-03-004. 2003. Available on CD and online at <www.binational.net>.
5. Canada and the United States. "Implementing Indicators 2003 - A Technical Report." ISBN 0-662-34797-8 (CD-Rom), Environment Canada, Burlington, Ontario, Cat. No. En164-1/2003E-MRC (CD-Rom), and U.S. Environmental Protection Agency, Chicago, EPA 905-R-03-003. 2003. Available on CD from U.S. EPA/Great Lakes National Program Office, Chicago.
6. Bertram, Paul and Nancy Stadler-Salt. "Selection of Indicators for Great Lakes Basin Ecosystem Health, Version 4." Environment Canada, Burlington, Ontario, and U.S. EPA, Chicago. 2000. Available online at <www.binational.net>.

FY 2005 Performance Measure: The average concentrations of PCBs in whole lake trout and walleye.

Performance Database: Great Lakes National Program Office (GLNPO) base monitoring program¹. The key fields for this measure are Lake Trout and Walleye (Lake Erie). Reporting starts with 1972 data for Lake Michigan and 1977 or 1978 data for the other Lakes. In FY05, the database will contain QA/QC data from fish collected in 2003.

Data Source: GLNPO's ongoing base monitoring program, which has included work with cooperating organizations such as the U.S. Geological Survey (USGS) and the U.S. Fish and Wildlife Survey (USFWS).

Methods, Assumptions, and Suitability: This indicator provides concentrations of selected organic contaminants in sport fish from the Great Lakes to: (1) determine time trends in contaminant concentrations, (2) assess impacts of contaminants on the fishery, and (3) to assess potential human and wildlife exposures from consuming contaminated sport fish. The data provide two elements of contaminant concentrations: The first element includes data from 600-700 mm lake trout (*Salvelinus namaycush*) whole fish composites (5 fish) from each of the lakes (walleye, *Stizostedion vitreum vitreum*, in Lake Erie). These data are used to assess time trends in organic contaminants in the

open waters of the Great Lakes, using fish as biomonitors. These data can also be used to assess the risks of such contaminants on the health of this important fishery, and on wildlife that consume them.

The second element of the indicator focuses on assessing human exposures via consumption of popular sport fish. Coho (*Oncorhynchus kisutch*) and chinook salmon (*Oncorhynchus tshawytscha*) from each lake (rainbow trout, *Salmo gairdneri*, in Lake Erie) are collected during the fall spawning run, and composite fillets (5 fish) are analyzed for organic contaminants to assess human exposure. The coho salmon spawn at 3 years of age, and so their body burdens reflect a more focused and consistent exposure time compared to the lake trout which may integrate exposures over 4 to 10 yrs depending on the lake. Chinook salmon spawn after 4-5 years, and have higher (and thus more detectable) concentrations than the coho salmon and also represent a consistent exposure time. Thus time trends for consistent age fish as well as consistent size fish can be assessed from these data.

QA/QC Procedures: GLNPO has an approved Quality Management system in place² that conforms to the EPA quality management order and is audited every 3 years in accordance with Federal policy for Quality Management. The Quality Assurance (QA) plan that supports the fish contaminant program is approved and available on request³. The draft field sampling Quality Assurance Project Plan (QAPP) is being revised and will be submitted to the GLNPO QA officer for review by September 30, 2003⁴.

Data Quality Review: GLNPO's quality management system has been evaluated as "outstanding" in previous peer and management reviews⁵. GLNPO has implemented all recommendations from these external audits and complies with Agency Quality standards.

Data Limitations: The top predator fish (lake trout) program was designed specifically for lakewide trends. It is not well suited to portray localized changes.

Error Estimate: The goal of the fish contaminant program is to detect a 20% change in each measured contaminant concentration between two consecutively sampled periods at each site. The program was designed to reach that goal with 95% confidence.

New/Improved Data or Systems: The GLENDa database is a significant new system with enhanced capabilities. Existing and future fish data will be added to GLENDa.

"The Great Lakes Fish Monitoring Program - A technical and Scientific Model For Interstate Environmental Monitoring." September, 1990. EPA503/4-90-004.

"Great Lakes National Program Office Indicators. Fish Indicators."
<http://www.epa.gov/glnpo/glindicators/fishcontaminants.html>

"Trends in Great Lakes Fish Contaminants", Dr. Deborah Swackhammer, Univ of Minnesota
Environ. Occ. Health, School of Public Health, EPA Grant #GL97524201-2, 7/1/02. De Vault, D. S. 1984. Contaminant analysis of fish from Great Lakes harbors and tributary mouths. U.S. Environmental Protection Agency, Great Lakes National Program Office. EPA 905/3-84-003.

De Vault, D. S. 1985. Contaminants in fish from Great Lakes harbors and tributary mouths. Archives of Environmental Contamination and Toxicology 14: 587-594.

De Vault, D. S., P. Bertram, D. M. Whittle and S. Rang. 1995. Toxic contaminants in the Great Lakes. State of the Great Lakes Ecosystem Conference (SOLEC). Chicago and Toronto, U.S. Environmental Protection Agency, Great Lakes National Program Office and Environment Canada.

De Vault, D. S., R. Hesselberg, P. W. Rodgers and T. J. Feist. 1996. Contaminant trends in lake trout and walleye from the Laurentian Great Lakes. Journal of Great Lakes Research 22: 884-895.

De Vault, D. S. and J. A. Weishaar. 1983. Contaminant analysis of 1981 fall run coho salmon. U.S. Environmental Protection Agency, Great Lakes National Program Office. EPA 905/3-83-001.

De Vault, D. S. and J. A. Weishaar. 1984. Contaminant analysis of 1982 fall run coho salmon. U.S. Environmental Protection Agency, Great Lakes National Program Office. EPA 905/3-85-004.

De Vault, D. S., J. A. Weishaar, J. M. Clark and G. Lavhis. 1988. Contaminants and trends in fall run coho salmon. *Journal of Great Lakes Research* 14: 23-33.

De Vault, D. S., W. A. Willford, R. Hesselberg, E. Nortrup and E. Rundberg. 1985. Contaminant trends in lake trout (*Salvelinus namaycush*) from the upper Great Lakes. *Archives of Environmental Contamination and Toxicology* 15: 349-356.

De Vault, D. S., W. A. Willford, R. J. Hesselberg and D. A. Nortrup. 1986. Contaminant trends in lake trout (*Salvelinus namaycush*) from the upper Great Lakes. *Archives of Environmental Contamination and Toxicology* 15: 349-356.

Eby, L. A., C. A. Stow, R. J. Hesselberg and J. F. Kitchell. 1997. Modeling changes in growth and diet on polychlorinated biphenyl bioaccumulation in "*Coregonus hoyi*". *Ecological Applications* 7(3): 981-990.

Giesy, J. P., et al. 1995. Contaminants in fishes from Great Lakes influenced sections and above dams of three Michigan rivers: III. Implications for health of bald eagles. *Archives of Environmental Contamination and Toxicology* 29: 309-321.

Giesy, J. P., J. P. Ludwig and D. E. Tillett. 1994. Deformities in birds of the Great Lakes region: assigning causality. *Environmental Science and Technology* 28(3): 128A-135A.

Giesy, J. P., et al. 1994. Contaminants in fishes from Great Lakes-influenced sections and above dams of three Michigan rivers. II: Implications for health of mink. *Archives of Environmental Contamination and Toxicology* 27: 213-223.

Glassmeyer, S. T., D. S. De Vault, T. R. Myers and R. A. Hites. 1997. Toxaphene in Great Lakes fish: a temporal, spatial, and trophic study. *Environmental Science and Technology* 31: 84-88.

Glassmeyer, S. T., K. E. Shanks and R. A. Hites. 1999. Automated toxaphene quantitation by GC/MS. *Analytical Chemistry* in press.

GLNPO. 1981. A Strategy for Fish Contaminant Monitoring in the Great Lakes. USEPA Great Lakes National Program Office. .

Jeremiason, J. D., K. C. Hornbuckle and S. J. Eisenreich. 1994. PCBs in Lake Superior, 1978-1992: decreases in water concentrations reflect loss by volatilization. *Environmental Science and Technology* 28(5): 903-914.

Kubiak, T. J., Harris, H. J., Smith, L. M., Schwartz, T. R., Stalling, D. L., Trick, J. A., Sileo, L., Docherty, D. E., and Erdman, T. C. 1989. Microcontaminants and reproductive impairment of the Forster's Tern on Green Bay, Lake Michigan - 1983. *Archives of Environmental Contamination and Toxicology* 18: 706-727.

Mac, M. J. and C. C. Edsal. 1991. Environmental contaminants and the reproductive success of lake trout in the Great Lakes. *J. Tox. Environ. Health*. 33: 375-394.

Mac, M. J., T. R. Schwartz, C. C. Edsall and A. M. Frank. 1993. Polychlorinated biphenyls in Great Lakes lake trout and their eggs: relations to survival and congener composition 1979-1988. *Journal of Great Lakes Research* 19(4): 752-765.

Madenjian, C. P., T. J. DeSorcie, R. M. Stedman, E. H. J. Brown, G. W. Eck, L. J. Schmidt, R. J. Hesselberg, S. M. Chernyak and D. R. Passino-Reader. 1999. Spatial patterns in PCB concentrations of Lake Michigan lake trout. *Journal of Great Lakes Research* 25(1): 149-159.

Madenjian, C. P., R. J. Hesselberg, T. J. Desorcie, L. J. Schmidt, R. M. Stedman, L. J. Begnoche and D. R. Passino-Reader. 1998. Estimate of net trophic transfer efficiency of PCBs to Lake Michigan lake trout from their prey. *Environmental Science and Technology* 32(7): 886-891.

Pearson, R. F., K. C. Hornbuckle, S. J. Eisenreich and D. L. Swackhammer. 1996. PCBs in Lake Michigan water revisited. *Environ. Sci. & Technol.* 30(5): 1429-1436.

Rodgers, P. W. and W. R. Swain. 1983. Analysis of polychlorinated biphenyl (PCB) loading trends in Lake Michigan. *Journal of Great Lakes Research* 9: 548-558.

Safe, S. H. 1994. Polychlorinated biphenyls (PCBs): environmental impact, biochemical and toxic responses, and implications for risk. *CRC Critical Reviews in Toxicology* 24(2): 87-149.

Schmidt, L. J., and Hesselberg, R. J. 1992. A mass spectroscopic method for analysis of AHH-inducing and other polychlorinated biphenyl congeners and selected pesticides in fish. *Archives of Environmental Contamination and Toxicology* 23: 37-44.

Stow, C. A. 1995. Factors associated with PCB concentrations in Lake Michigan salmonids. *Environmental Science and Technology* 29(2): 522-527.

Stow, C. A., S. R. Carp and J. F. Amrhein. 1994. PCB concentration trends in Lake Michigan coho (*Oncorhynchus kisutch*) and chinook salmon (*O. tshawytscha*). *Canadian Journal of Fisheries and Aquatic Science* 51: 1384-1390.

Stow, C. A. and S. R. Carpenter. 1994. PCB accumulation in Lake Michigan coho and chinook salmon: individual-based models using allometric relationships. *Environmental Science and Technology* 28: 1543-1549.

Stow, C. A., S. R. Carpenter, L. A. Eby, J. F. Amrhein and R. J. Hesselberg. 1995. Evidence that PCBs are approaching stable concentrations in Lake Michigan fishes. *Ecological Applications* 5: 248-260.

Stow, C. A. and S. S. Qian. 1998. A size-based probabilistic assessment of PCB exposure from Lake Michigan fish consumption. *Environmental Science and Technology* 32: 2325-2330.

Swackhammer, D., J. Charles and R. Hites. 1987. Quantitation of toxaphene in environmental samples using negative ion chemical ionization mass spectrometry. *Analytical Chemistry* 59: 913-917.

Swackhammer, D. L. 1996. Studies of polychlorinated biphenyls in the Great Lakes. *Issues in Environmental Science and Technology* 6: 137-153.

Swackhammer, D. L. and R. A. Hites. 1988. Occurrence and bioaccumulation of organochlorine compounds in fishes from Siskiwit Lake. *Environmental Science and Technology* 22: 543-548.

Swackhammer, D. L. and A. Trowbridge. 1997. LMMBS Methods Compendium: Vol. 2 Organics and Mercury Sample Analysis Techniques, Chapter 1, Section 042. USEPA. 905-R-97-012b.

Trowbridge, A. G. and D. L. Swackhammer. 1999. Biomagnification of Toxic PCB Congeners in the Lake Michigan Foodweb. *Bioaccumulative Toxic Compounds in the Environment*. R. Lipnick, D. Muir, J. Hermens and K. C. Jones. Washington, DC, ACS Symposium Series Monograph: in review.

"Quality Management Plan for the Great Lakes National Program Office." EPA905-R-02-009. October 2002, Approved April 2003.

Swackhammer, D. L. 2001. "Trends in Great Lakes Fish Contaminants." Unpublished - in USEPA Great Lakes National Program Office files.

Swackhammer, D.L. February 2002. "Trends in Great Lakes Fish Contaminants." Unpublished - in USEPA Great Lakes National Program Office files.

"GLNPO Management Systems Review of 1999." Unpublished - in USEPA Great Lakes National Program Office files.

FY 2005 Performance Measure: Concentration trends of toxic chemicals in the air in the Great Lakes basin will decline.

Performance Database: Great Lakes National Program Office (GLNPO) integrated atmospheric deposition network ¹ (IADN) operated jointly with Canada. Reporting starts with 1992 data, collected through the joint US/Canadian Integrated Atmospheric Deposition Program and includes, PCBs, PAHs, and pesticides. Monitoring results from 2003 will be reported in 2005.

Data Source: GLNPO and Environment Canada are the principal sources of the data. Data also come through in-kind support and information sharing with other Federal agencies, with Great Lakes' States, and with Canada.

Methods, Assumptions, and Suitability: There are five master IADN stations, one for each lake, which are supplemented by satellite stations in other locations. The master stations are located in remote areas and are meant to represent regional background levels. Concentrations from the master stations are used for the performance measure. Concentrations from the satellite stations in Chicago and Cleveland are also sometimes used to demonstrate the importance of urban areas to atmospheric deposition to the Lakes.

Air samples are collected for 24 hours using hi-volume samplers containing an adsorbent. Precipitation samples are collected as 28-day composites. Laboratory analysis protocols generally call for solvent extraction of the organic sampling media with addition of surrogate recovery standards. Extracts are then concentrated followed by column chromatographic cleanup, fractionation, nitrogen blow-down to small volume (about 1 mL) and injection (typically 1 uL) into GC-ECD or GC-MS instruments.

All IADN data are loaded and quality controlled using the Research Database Management System (RDMQ), a Statistical Analysis System (SAS) program. RDMQ provides a unified set of quality assured data, including flags for each data point that can be used to evaluate the usability of the data. Statistical summaries of annual concentrations are generated by the program and used as input into an atmospheric loading calculation. The loadings calculation is described in detail in the Technical Summary referenced below. However, the averaged annual concentrations rather than the loadings are used in the performance measure.

QA/QC Procedures: GLNPO has a Quality Management system in place, which conforms to the EPA quality management order and is audited every 3 years in accordance with Federal policy for Quality Management². Quality Assurance Project Plans are in place for the laboratory grantee, as well as for the network as a whole. A jointly-funded QA contractor conducts laboratory audits and tracks QA statistics. Data from all contributing agencies are quality-controlled using the SAS-based system.

Data Quality Review: GLNPO's quality management system has been evaluated as "outstanding" in previous peer and management reviews³. This program has a joint Canadian US quality system and workgroup that meets twice a year. GLNPO has implemented all recommendations from these external audits and complies with Agency Quality standards⁴.

A regular set of laboratory and field blanks is taken and recorded for comparison to the IADN field samples. In addition, a suite of chemical surrogates and internal standards is used extensively in the analyses. A jointly-funded QA contractor conducts laboratory audits and intercomparisons and tracks QA statistics. As previously mentioned, data from all contributing agencies are quality-controlled using a SAS-based system.

Data Limitations: The sampling design is dominated by rural sites that under emphasize urban contributions to deposition; thus although the data is very useful for trends information, there is less assurance of the representativeness of deposition to the whole lake. There are gaps in open lake water column organics data, thus limiting our ability to calculate atmospheric loadings.

Error estimate: Concentrations have an error of +/- 40%, usually less. Differences between laboratories have been found to be 40% or less. This is outstanding given the very low levels of these pollutants in the air and the difficulty in analysis. The performance measure examines the long-term trend.

New/Improved Data or Systems: GLNPO expects to post joint data that has passed quality review to < <http://binational.net/> >, a joint international web site, and to the IADN website at < www.msc.ec.gc.ca/iadn/ >.

References:

1. "Great Lakes National Program Office Indicators. Air Indicators."
<http://www.epa.gov/glnpo/glindicators/atmospheric.html>

Details of these analyses can be found in the Laboratory Protocol Manuals or the agency project plans, which can be found on the IADN resource page at: http://www.msc.ec.gc.ca/iadn/resources/resources_e.html

Overall results of the project can be found in "Technical Summary of Progress under the Integrated Atmospheric Deposition Program 1990-1996" and the Draft "Technical Summary of Progress under the Integrated Atmospheric Deposition 1997-2002". The former can also be found on the IADN resource page.

2. "Quality Management Plan for the Great Lakes National Program Office." EPA905-R-02-009. October 2002, Approved April 2003.

3. "GLNPO Management Systems Review of 1999." Unpublished - in USEPA Great Lakes National Program Office files.

4. "Integrated Atmospheric Deposition Network Quality Assurance Program Plan - Revision 1.1." Environment Canada and USEPA. June 29, 2001. Unpublished - in USEPA Great Lakes National Program Office files.

FY 2005 Performance Measure: Cumulative total of Areas of Concern within the Great Lakes Basin that have been restored and delisted.

Performance Database: US EPA's Great Lakes National Program Office will track the cumulative total Areas of Concern (AOC) and post that information <http://www.epa.gov/glnpo/aoc/index.html>. Forty-three AOCs have been identified: 26 located entirely within the United States; 12 located wholly within Canada; and five that are shared by both countries. GLNPO is tracking the 31 which are within the US or shared; however, none of these are currently restored and delisted.

Data Source: Internal tracking and communications with Great Lakes States, the US Department of State and the International Joint Commission (IJC).

Methods, Assumptions, and Suitability: US EPA's Great Lakes National Program Office is in regular communication with the Great Lakes States, the US Department of State and the IJC, and is responsible for coordinating and overseeing the de-listing of Areas of Concern.

QA/QC Procedures: GLNPO has an approved Quality Management system in place¹ that conforms to the EPA quality management order and is audited every 3 years in accordance with Federal policy for Quality Management

Data Quality Review: GLNPO's quality management system has been given "outstanding" evaluations in previous peer and management reviews². GLNPO has implemented all recommendations from these external audits and complies with Agency Quality standards.

Data Limitations: None known.

Error Estimate: None.

New/Improved Data or Systems: NA

References:

GLNPO will develop and maintain the appropriate tracking system once there are any de-listed US or Binational Areas of Concern. Information regarding Areas of Concern is currently available online at: <http://www.epa.gov/glnpo/aoc/index.html>

1. "Quality Management Plan for the Great Lakes National Program Office." EPA905-R-02-009. October 2002, Approved April 2003.
2. "GLNPO Management Systems Review of 1999." Unpublished - in USEPA Great Lakes National Program Office files.

FY 2005 Performance Measure: Cubic yards of contaminated sediment in the Great Lakes remediated. (cumulative from 1997)

Performance Database: Data tracking sediment remediation are compiled in two different formats. The first is a matrix that shows the cumulative total of contaminated sediment that was remediated in the Great Lakes basin from 1997 to 2002 for each Area of Concern or other non-Areas of Concern with sediment remediation. The second format depicts the yearly totals for sediment remediation projects graphically. These databases are reported approximately one year after the completion of work.

Data Source: GLNPO collects sediment remediation data from various state and Federal project managers across the Great Lakes region. These data are obtained directly from the project manager via an information fact sheet the project manager completes for any site in the Great Lakes basin that has performed any remedial work on

contaminated sediment. The project manager also indicates whether an approved Quality Assurance Project Plan (QAPP) was used in the collection of data at the site. This is used to decide if the data provided by the project manager are reliable for GLNPO reporting purposes. If an approved QAPP was not used, sediment data would likely not be reported by GLNPO.

Methods, Assumptions, and Suitability: The data collected to track sediment remediation in the Great Lakes show the amount of sediment remediated for that year, the amount of sediment remediated in prior years, and the amount of sediment remaining to be addressed for a particular site. This format is suitable for year-to-year comparisons for individual sites.

QA/QC Procedures: GLNPO relies on the individual government/agency project managers to provide information on whether an approved QAPP was in place during remediation of contaminated sediment. This tracking database houses information on the calculated amount of sediment remediated at individual sites as provided by the project managers. It is then GLNPO's responsibility to determine if the data are usable based upon the information sheet provided by the project managers.

Data Quality Review: The data, in both the graphic and matrix formats, are reviewed by management, individual project managers, and GLNPO's Sediment Team Leader prior to being released. GLNPO's quality management system has been given "outstanding" evaluations in previous peer and management reviews. GLNPO has implemented all recommendations from these external audits and complies with Agency Quality standards.

Data Limitations: The data provided in the sediment tracking database should be used as a tool to track sediment remediation progress at sites across the Great Lakes. Many of the totals for sediment remediation are estimates provided by project managers. For specific data uses, individual project managers should be contacted to provide additional information.

Error Estimate: The amount of sediment remediated or yet to be addressed should be viewed as estimated data. A specific error estimate is not available.

New/Improved Data or Systems: Existing tracking systems are anticipated to remain in place.

References:

1. Collier, D.C. 2002. "*Sediment Remediation Matrix*". Unpublished - in USEPA Great Lakes National Program Office files.
2. Collier, D.C. 2002. "*Sediment Remediation Pie Charts*". Unpublished - in USEPA Great Lakes National Program Office files.
3. Collier, D.C. 2002. "Compilation of Project Managers Informational Sheets". Unpublished - in USEPA Great Lakes National Program Office files.

FY 2005 Performance Measure: Acres of submerged aquatic vegetation (SAV) present in the Chesapeake Bay.

Performance Database: SAV acres in Chesapeake Bay. Total acres surveyed and estimated additional acres from 1978 through 2002, excluding the years 1979-1983 and 1988 when no surveys were conducted. FY 2005 Annual Performance Report for this measure will be based on the results of the survey conducted the previous calendar year (2004). We expect to receive the preliminary survey results for calendar year 2004 in April 2005.

Data Source: Virginia Institute of Marine Sciences provides the data (via an EPA Chesapeake Bay Program grant to Virginia Institute of Marine Sciences). EPA has confidence in the third party data and believes the data are accurate and reliable based on QA/QC procedures described below.

Methods, Assumptions and Suitability: The SAV survey is a general monitoring program, conducted to optimize precision and accuracy in characterizing annually the status and trends of SAV in tidal portions of the Chesapeake Bay. The general plan is to follow fixed flight routes over shallow water areas of the Bay, to comprehensively survey all tidal shallow water areas of the Bay and its tidal tributaries. Non-tidal areas are omitted from the survey. SAV beds less than 1 square meter are not included due to the limits of the photography and interpretation. Annual

monitoring began in 1978 and is ongoing. Methods are described in the Quality Assurance Project Plan (QAPP) on file for the EPA grant and at the VIMS web site (<http://www.vims.edu><http://www.vims.edu/bio/sav/>).

QA/QC Procedures: Quality assurance project plan for the EPA grant to the Virginia Institute of Marine Sciences describes data collection, analysis, and management methods. This is on file at the EPA Chesapeake Bay Program Office. The VIMS web site at <http://www.vims.edu/bio/sav/> provides this information as well. Metadata are included with the data set posted at the VIMS web site (<http://www.vims.edu/bio/sav/metadata/recent.html>).

Data Quality Reviews: This indicator has undergone extensive technical and peer review by state, Federal and non-government organization partner members of the SAV workgroup and the Living Resources subcommittee. Data collection, data analysis and QA/QC are conducted by the principal investigators/scientists. The data are peer reviewed by scientists on the workgroup. Data selection and interpretation, the presentation of the indicator, along with all supporting information and conclusions, are arrived at via consensus by the scientists and resource manager members of the workgroup. The workgroup presents the indicator to the subcommittee where extensive peer review by Bay Program managers occurs.

No audits have been conducted by the Inspector General (IG) or evaluations by the General Accounting Office (GAO), OMB and National Academy of Public Administration (NAPA). No deficiencies identified in external reviews. Data are not identified as an "Agency-Level or Material Weakness" as a result of EPA decisions under the Federal Managers Financial Integrity Act.

Data Limitations: Due to funding constraints, there were no surveys in the years 1979-1983 and 1988. Spatial gaps in 1999 occurred due to hurricane disturbance and subsequent inability to reliably photograph SAV. Spatial gaps in 2001 occurred due to post-nine-eleven flight restrictions near Washington D.C.

Error Estimate: No error estimate is available for this data.

New/Improved Data or Systems: Some technical improvements (e.g., photointerpretation tools) were made over the 22 years of the annual SAV survey in Chesapeake Bay.

References:

See Chesapeake Bay SAV special reports at <http://www.vims.edu/bio/sav/savreports.html> and bibliography at <http://www.vims.edu/bio/sav/savchepub.html>. The SAV distribution data files are located at <http://www.vims.edu/bio/sav/savdata.html> and also at <http://www.chesapeakebay.net/pubs/statustrends/88-data-2002.xls>. The SAV indicator is published at <http://www.chesapeakebay.net/status.cfm?sid=88>.

FY 2005 Performance Measures:

- **Reduce nitrogen loads entering Chesapeake Bay, from 1985 levels (2002 Baseline: 51 million pounds/year reduced.)**
- **Reduce phosphorus loads entering Chesapeake Bay, from 1985 levels. (2002 Baseline: 8 million pounds/year reduced.)**
- **Reduce sediment loads entering Chesapeake Bay, from 1985 levels. (2002 Baseline: 0.8 million tons/year reduced.)**

Performance Database: Nutrient and Sediment Loads Delivered to the Chesapeake Bay. The Bay data files used in the indicator are located at <http://www.chesapeakebay.net/pubs/statustrends/186-data-2003.xls>. Data have been collected in 1985, 2000, 2001, and are expected on an annual basis after 2001. There is a two year data lag. Load data are from Chesapeake Bay watershed portions of NY, MD, PA, VA, WV, DE, and DC.

FY 2005 Annual Performance Report for these measures will be based on the results of the 2003 data collection. We expect to receive the preliminary results for calendar year 2003 in April 2005.

Data Source: State/district data are provided to the Chesapeake Bay Program Office for input into the Chesapeake Bay Program Watershed Model.

Methods, Assumptions and Suitability: The data are of high quality. Data are consolidated by watershed boundaries at the state level and provided to the Chesapeake Bay Program Office for input into the watershed model.

Data are collected from states and local governments programs. Methods are described at <http://www.chesapeakebay.net/data/index.htm>, (refer to CBP Watershed Model Scenario Output Database, Phase 4.3). For more information contact Kate Hopkins at hopkins.kate@epa.gov or Jeff Sweeney jsweeney@chesapeakebay.net

QA/QC Procedures: State offices have documentation of the databases used indicating the design, construction and maintenance conforming to existing U.S. Department of Agriculture Natural Resources Conservation Service (USDA/NRCS) technical standards and specifications for nonpoint source data and PCS standards for point source data. State offices also have documentation of implemented Best Management Practices (BMPs) based on USDA NRCS standards and specification and the Chesapeake Bay Program's protocols and guidance. BMPs are traditionally used to reduce pollutant loads coming from nonpoint sources such as urban/suburban runoff, agriculture, and forestry activities. Some people also think of nutrient reduction technology used at wastewater treatment plants as a point source BMP, however, in the traditional sense, BMPs have been used to describe the suite of practices used to reduce pollutant loads coming from agricultural, forest, and urban/suburban lands. References include: the USDA NRCS Technical Guide and Appendix H from the Chesapeake Bay Program (contact Russ Mader at mader.russ@epa.gov or Kate Hopkins at hopkins.kate@epa.gov). Quality assurance program plans are available in each state office.

Data Quality Reviews: All data are reviewed and approved by the individual jurisdictions before input to the watershed model. Model results are also reviewed and approved before release to the web site. Processes are reviewed by the Tributary Strategy Workgroup of the Nutrient Subcommittee. The model itself is given a quarterly peer review by an outside independent group of experts.

No audits have been conducted by the Inspector General (IG) or evaluations by the General Accounting Office (GAO), OMB and National Academy of Public Administration (NAPA). No deficiencies identified in external reviews. Data are not identified as an "Agency-Level or Material Weakness" as a result of EPA decisions under the Federal Managers Financial Integrity Act.

Data Limitations: Data collected from voluntary collection programs are not included in the database, even though they may be valid and reliable. The only data submitted by state and local governments to our office are data that are required for reporting under the cost share and regulatory programs. State and local governments are aware that additional data collection efforts are being conducted by non-governmental organizations and that several entities are involved in using BMPs, however, they are done independently of the cost share programs and are therefore not reported.

Error Estimate: There may be errors of omission, mis-classification, incorrect georeferencing, mis-documentation or mistakes in the processing of data.

New/Improved Data or Systems: The next version of the watershed model is currently under development and will be completed in 2005. The new version(phase 5) will have increased spatial resolution and ability to model the effect of management practices. The phase 5 watershed model is a joint project with cooperating state and Federal agencies. Contact Gary Shenk gshenk@chesapeakebay.net or see the web site at <http://www.chesapeakebay.net/phase5.htm>

References:

See <http://www.chesapeakebay.net/data/index.htm>, refer to CBP Watershed Model Scenario Output Database, Phase 4.3. Contact Kate Hopkins at hopkins.kate@epa.gov or Jeff Sweeney jsweeney@chesapeakebay.net

The nutrient and sediment loads delivered to the Bay indicator are published at <http://www.chesapeakebay.net/status.cfm?sid=186>. The nutrient and sediment loads delivered to the Bay data files used in the indicator are located at <http://www.chesapeakebay.net/pubs/statustrends/186-data-2003.xls>.

See "Chesapeake Bay Watershed Model Application and Calculation of Nutrient and Sediment Loadings, Appendix H: Tracking Best Management Practice Nutrient Reductions in the Chesapeake Bay Program, A Report of the Chesapeake Bay Program Modeling Subcommittee", USEPA Chesapeake Bay Program Office, Annapolis, MD, August 1998, available at <http://www.chesapeakebay.net/pubs/777.pdf>

See USDA NRCS Field Office Technical Guide available at <http://www.nrcs.usda.gov/technical/efotg/>

FY 2005 Performance Measure: Prevent water pollution and protect aquatic ecosystems so that overall aquatic system health of coastal waters of the Gulf of Mexico is improved on the "good/fair/poor" scale of the National Coastal Condition Report.

FY 2005 Performance Measure: Reduce releases of nutrients throughout the Mississippi River Basin to reduce the size of the hypoxic zone in the Gulf of Mexico.

Performance Database: (1) Louisiana Coastal Hypoxia Shelfwide Survey metadata (data housed at National Oceanic and Atmospheric Administration/National Ocean Data Center, Silver Spring, Maryland). Funds for this research are provided by the National Oceanic and Atmospheric Administration, Coastal Ocean Program (NOAA/COP)

(2) Southeast Area Monitoring and Assessment Program (SEAMAP) - Gulf surveys.

Data Source: (1) Hydrographic data are collected during annual surveys of the Louisiana continental shelf. Nutrient, pigment and station information data are also acquired. The physical, biological and chemical data collected are part of a long-term coastal Louisiana dataset. The goal is to understand physical and biological processes that contribute to the causes of hypoxia and use the data to support environmental models for use by resource managers.

(2) The Southeast Area Monitoring and Assessment Program (SEAMAP) is a state/Federal/university program for collection, management and dissemination of fishery-independent data and information in the southeastern United States

Methods, Assumptions and Suitability: (1) During the shelfwide cruise, data is collected along transects from the mouth of the Mississippi River to the Texas border. Information is collected on a wide range of parameters, including conductivity/temperature/depth (CTD), light penetration, dissolved oxygen, suspended solids, nutrients, phytoplankton, and chlorophyll. Hydrographic, chemical, and biological data from two transects of Terrebonne Bay on a monthly basis, and bimonthly, off Atchafalaya Bay. There is a single moored instrument array in 20-m water depth in the core of the hypoxic zone that collects vertical conductivity/temperature data, as well as near-surface, mid, and near-bottom oxygen data; an upward directed Acoustic Doppler Current Profiler (ADCP) on the seabed measures direction and speed of currents from the seabed to the surface. There is also an assortment of nutrient and light meters.

Station depths range from 3.25 to 52.4 meters. **The objective is to delimit and describe the area of midsummer bottom dissolved oxygen less than 2 (mg. L).** Northern end stations of transects are chosen based on the survey vessel's minimum depth limits for each longitude.

Standard data collections include hydrographic profiles for temperature, salinity, dissolved oxygen, and optical properties. Water samples for chlorophyll *a* and phaeopigments, nutrients, salinity, suspended sediment, and phytoplankton community composition are collected from the surface, near-bottom, and variable middle depths.

Details of data collection and methodology are provided in referenced reports.

QA/QC Procedures: NOAA does not require written QA/QC procedures or Quality Management Plan; however, the procedures related to data collection are covered in the metadata files.

SEAMAP Data Management System (DMS) is based on information contained in the SEAMAP Gulf and South Atlantic DMS Requirements Document developed through a cooperative effort between National Marine Fisheries Service (NMFS) and other SEAMAP participants.

Data Quality Reviews: (1) Essential components of an environmental monitoring program in the Gulf of Mexico include efforts to document the temporal and spatial extent of shelf hypoxia, and to collect basic hydrographic, chemical and biological data related to the development of hypoxia over seasonal cycles. All data collection protocols and data are presented to and reviewed by the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (the Task Force) in support of the adaptive management approach as outlined in the Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico (the Action Plan).

(2) Biological and environmental data from all SEAMAP-Gulf surveys are included in the SEAMAP Information System, managed in conjunction with National Marine Fisheries Service – Southeast Fisheries Science Center (NMFS-SEFSC). Raw data are edited by the collecting agency and verified by the SEAMAP Data Manager prior to entry into the system. Data from all SEAMAP-Gulf surveys during 1982-2002 have been entered into the system, and data from 2003 surveys are in the process of being verified, edited, and entered for storage and retrieval.

Data Limitations: Some existing monitoring for shelf-wide conditions are currently only performed each year primarily, but not exclusively, during July. Resources to conduct them limit the spatial boundaries of some of these existing monitoring efforts. Experience with the datasets has shown that when data are plotted or used in further analysis, outlying values may occasionally be discovered.

Error Estimate: (1) The manufacturers state +/- 0.2mg/L as the error allowance for both SeaBird and Hydrolab oxygen sensors.

References:

Mississippi River/Gulf of Mexico Watershed Nutrient Task force.2001. Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico. Washington, DC.

Rabalais N.N., R.E. Turner, Dubravko Justic, Quay Dortch, and W.J. Wiseman. 1999. Characterization of Hypoxia. Topic 1 Report for the Integrated assessment on Hypoxia in the Gulf of Mexico. NOAA Coastal Ocean Program Decision Analysis Series No. 15. Silver Spring Maryland: National Oceanic and Atmospheric Administration.

Hendee, J.C. 1994. Data management for the nutrient enhanced coastal ocean productivity program. *Estuaries* 17:900-3

Rabalais, Nancy N., W.J. Wiseman Jr., R.E. Turner ; Comparison of continuous records of near-bottom dissolved oxygen from the hypoxia zone of Louisiana. *Estuaries* 19:386-407

SEAMAP Information System <http://www.gsmfc.org/sis.html>

STATUTORY AUTHORITIES

1909 The Boundary Waters Treaty
1978 Great Lakes Water Quality Agreement (GLWQA)
1987 Great Lakes Water Quality Agreement
1987 Montreal Protocol on Ozone Depleting Substances
1990 Great Lakes Critical Programs Act
1996 Habitat Agenda
1997 Canada-U.S. Great Lakes Binational Toxics Strategy
2002 Great Lakes and Lake Champlain Act
Clean Water Act
Coastal Wetlands Planning, Protection, and Restoration Act of 1990
Estuaries and Clean Waters Act of 2000
North American Wetlands Conservation Act
US-Canada Agreements
Water Resources Development Act (WRDA)

OBJECTIVE: Enhance Science and Research

Through 2008, provide a sound scientific foundation for EPA's goal of protecting, sustaining, and restoring the health of people, communities, and ecosystems by conducting leading-edge research and developing a better understanding and characterization of environmental outcomes under Goal 4.

Resource Summary (Dollars in Thousands)

| | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | FY 2005 Req. v. FY 2004 Pres Bud |
|-------------------------------------|--------------------|-----------------------|-----------------------|-------------------------------------|
| Enhance Science and Research | \$380,878.7 | \$420,040.9 | \$394,823.7 | (\$25,217.2) |
| Environmental Program & Management | \$52,443.0 | \$61,444.1 | \$62,016.9 | \$572.8 |
| Hazardous Substance Superfund | \$34,740.6 | \$14,267.8 | \$8,361.6 | (\$5,906.2) |
| Science & Technology | \$286,526.2 | \$336,318.6 | \$316,109.2 | (\$20,209.4) |
| Buildings and Facilities | \$5,525.0 | \$5,680.5 | \$6,131.7 | \$451.2 |
| Inspector General | \$1,643.9 | \$2,329.9 | \$2,204.3 | (\$125.6) |
| Total Workyears | 1,230.8 | 1,230.4 | 1,230.0 | -0.4 |

Program Project (Dollars in Thousands)

| | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | FY 2005 Req. v. FY 2004 Pres Bud |
|---|--------------------|-----------------------|-----------------------|-------------------------------------|
| Research: Computational Toxicology | \$5,436.9 | \$8,948.6 | \$13,028.7 | \$4,080.1 |
| Research: Endocrine Disruptor | \$13,161.9 | \$12,984.7 | \$8,044.0 | (\$4,940.7) |
| Research: Global Change | \$22,354.9 | \$21,528.6 | \$20,689.6 | (\$839.0) |
| Research: Human Health and Ecosystems | \$163,550.7 | \$190,730.8 | \$177,407.5 | (\$13,323.3) |
| Research: Pesticides and Toxics | \$32,664.7 | \$36,784.8 | \$29,017.7 | (\$7,767.1) |
| Research: Fellowships | \$2,040.8 | \$6,402.8 | \$8,261.6 | \$1,858.8 |
| Congressionally Mandated Projects | \$13,669.8 | \$0.0 | \$0.0 | \$0.0 |
| Homeland Security: Preparedness, Response, and Recovery | \$30,959.2 | \$28,999.9 | \$22,751.7 | (\$6,248.2) |
| Endocrine Disruptors | \$7,075.1 | \$9,002.7 | \$9,037.3 | \$34.6 |
| Science Policy and Biotechnology | \$850.2 | \$1,603.8 | \$1,707.2 | \$103.4 |
| Human Health Risk Assessment | \$27,536.0 | \$36,495.0 | \$36,832.2 | \$337.2 |
| Administrative Projects | \$61,578.5 | \$66,559.2 | \$68,046.2 | \$1,487.0 |
| TOTAL | \$380,878.7 | \$420,040.9 | \$394,823.7 | (\$25,217.2) |

ANNUAL PERFORMANCE GOALS AND MEASURES**Research****Research to Support FQPA**

In 2005 Provide high quality exposure, effects and assessment research results that support the August 2006 reassessment of current-use pesticide tolerances to EPA's Office of Pesticide Programs so that, by 2008, EPA will be able to characterize key factors influencing children's and other subpopulations' risks from pesticide exposure.

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. 09/30/05 | |
|---|--------------------|-----------------------|-----------------------------------|------------|
| Children's exposure data and tools for assessing aggregate exposure to residential-use pesticides | | | | data/tools |

Baseline: The Food Quality Protection Act (FQPA) requires EPA to review, by August 2006, the pesticide tolerances for pesticides in use as of August 1996. EPA's Office of Research Development (ORD) has been conducting research to generate new and improved exposure and effects tools (data, methods, and models) to assist the Office of Pesticide Programs (OPP) in meeting this 2006 requirement. In FY05, ORD will provide OPP with a summary document highlighting the key results from ORD's exposure research program over the period 2000-2005. ORD will also provide OPP with validated children's pesticide exposure data and exposure factor data from multiple exposure field and laboratory studies. This high quality data will fill critical data gaps and eliminate the need for using many default assumptions currently used in the risk assessment process. An analysis of these results will also be performed to help identify remaining critical children's exposure data needs. ORD will also provide OPP with a suite of exposure-to-dose models that can be used to estimate aggregate pesticide exposures for children (by age and developmental life stage) and other susceptible subpopulations. These state-of-the-art models will be used by OPP to develop pesticide exposure distributions and address key issues associated with variability and uncertainty in exposure. With improved information, EPA can better protect public health from risks posed by pesticide use. Beginning in FY 2005, regular evaluations by independent and external panels will provide reviews of EPA research programs' relevance, quality, and successful performance to date, in accordance with OMB's Investment Criteria for Research and Development. Reviewers will also qualitatively determine whether EPA has been successful in meeting its annual and long-term commitments for research.

Risk Assessment

In 2005 Through FY2005 initiate or submit to external review 28 human health assessments and complete 12 human health assessments through the Integrated Risk Information System (IRIS). This information will improve EPA's and other decisionmakers' ability to protect the public from harmful chemical exposure

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
|---|--------------------|-----------------------|-----------------------|-------------|
| Complete 4 human health assessments and publish their results on the IRIS website | | 4 | | assessments |
| Initiate or submit to external peer review human health assessments of at least 20 high priority chemicals. | | 20 | | assessments |
| Complete 8 human health assessments and publish their results on the IRIS website | | | 8 | assessments |
| Initiate or submit to external peer review human health assessments of 8 high priority chemicals | | | 8 | assessments |

Baseline: IRIS is an EPA data base containing Agency consensus scientific positions on potential adverse human health effects that may result from exposure to chemical substances found in the environment. IRIS currently provides information on health effects associated with chronic exposure to over 500 specific chemical substances. IRIS contains chemical-specific summaries of qualitative and quantitative health information in support of the first two steps of the risk assessment process, i.e., hazard identification and dose-response evaluation. Combined with specific situational exposure assessment information, the information in IRIS may be used as a source in evaluating potential public health risks from environmental contaminants. IRIS is widely used in risk assessments for EPA regulatory programs and site-specific decision making. Updating IRIS with new scientific information is critical to maintaining information quality and providing decision makers with a credible source of health effects information. Achieving this APG will provide EPA and other decision makers with needed updates to IRIS so they can make informed decisions on how to best protect the public from harmful chemical exposure. In FY 2004, the Agency will complete 4 human health assessments and initiate or submit for external peer review human health assessments of at least 20 high priority chemicals. In FY 2005, EPA will complete 8 more assessments and initiate or submit for review an additional 8 assessments, for a two-year total of 12 completed assessments and 28 initiated or submitted for review. Beginning in FY 2005, regular evaluations by independent and external panels will provide reviews of EPA research programs' relevance, quality, and successful performance to date, in accordance with OMB's Investment Criteria for Research and Development. Reviewers will also qualitatively determine whether EPA has been successful in meeting its annual and long-term commitments for research.

Regional Scale Ecosystem Assessment Methods

In 2005 The baseline ecological condition of Western streams will be determined so that, by 2008, a monitoring framework is available for streams and small rivers in the Western U.S. that can be used from the local to the national level for statistical assessments of condition and change to determine the status and trends of ecological resources.

In 2004 Provide Federal, state and local resource managers with a means to more effectively determine long-term trends in the condition and vitality of Eastern U.S. stream ecosystems through measurements of changes in the genetic diversity of stream fish populations.

| | | | | |
|--|--------------------|-----------------------|-----------------------|--------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| A study of fish genetic diversity that demonstrates the power of this modern approach for evaluating condition and vitality of biotic communities to Federal, state and local resource managers. | | 1 | | report |
| Baseline ecological condition of Western streams determined | | | 1 | report |

Baseline: This FY 2005 APG represents the first statistically-valid baseline for Western stream condition from state-based data. Although States and Tribes are required by the Clean Water Act (CWA) to monitor the condition of all their waters, they typically are only able to monitor at, and make scientifically defensible statements about, targeted sites that account for only a small percentage of their total waters. The monitoring framework used in the achievement of this APG removes scientific uncertainty by using a probability design approach (random sampling) to provide a more cost-effective, scientifically-defensible alternative for determining the condition of all the streams of a State or Tribe. EPA is transferring this approach to our State, Tribal, and EPA Regional partners in the Western U.S. so that they can determine the status and trends of their ecological resources. This monitoring framework also provides the scientific basis for identifying problems and needs for action, causes of harm, and successful mitigation and restoration efforts. This information will ultimately allow EPA to determine its success in achieving specific environmental outcomes.

Beginning in FY 2005, regular evaluations by independent and external panels will provide reviews of EPA research programs' relevance, quality, and successful performance to date, in accordance with OMB's Investment Criteria for Research and Development. These evaluations will include an examination of a program's design to determine the appropriateness of a program's short-, intermediate-, and long-term goals and its strategy for attaining these. Reviewers will also qualitatively determine whether EPA has been successful in meeting its annual and long-term commitments for research. Recommendations and results from these reviews will improve the design and management of EPA research programs and help to measure their progress under the Government Performance and Results Act (GPRA).

Research on Riparian Zone Restoration

In 2005 Provide technical guidance for implementing and evaluating projects to restore riparian zones, which are critical landscape components for the restoration of aquatic ecosystems and water quality, so that, by 2010, watershed managers have state-of-the-science field-evaluated tools, technical guidance, and decision-support systems for selecting, implementing, and evaluating cost-effective and environmentally-sound approaches to restore ecosystem services as part of watershed management

| | | | | |
|---|--------------------|-----------------------|-----------------------|-------------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
| Technical guidance for implementing and evaluating projects to restore riparian zones | | | 1 | tech. guide |

Baseline: This FY 2005 APG will provide State, Tribal, Regional, and local watershed managers and restoration practitioners with technical guidance for selecting, implementing, and evaluating cost-effective and environmentally-sound approaches to restore ecosystem services. Essential ecosystem services are a result of naturally occurring processes and include such necessities for human health as a reliable supply of clean water, oxygen, nutrient cycling, and soil regeneration, as well as wildlife habitat and greenspace. Habitat destruction, invasive species, and non-point source pollutants such as excess nitrogen and eroded sediments adversely impact ecosystem services by contributing to the loss of ecosystems and/or their functions. Finding effective and efficient ways to protect and restore ecosystem services is necessary for human, as well as ecological, health. Riparian zones, i.e. those areas immediately adjacent to river and stream banks, are critical components of any watershed. Without a healthy riparian zone, it would be difficult, if not impossible, to achieve water quality goals. EPA is evaluating the effectiveness of riparian restoration techniques as tools to achieve goals such as water quality criteria or the restoration of specific ecosystem functions, such as denitrification. The guidance represented by this APG will help watershed managers and restoration practitioners in decision-making and on-the-ground implementation of scientifically- and technically-defensible restoration and management techniques.

Beginning in FY 2005, regular evaluations by independent and external panels will provide reviews of EPA research programs' relevance, quality, and successful performance to date, in accordance with OMB's Investment Criteria for Research and Development. Reviewers will also qualitatively determine whether EPA has been successful in meeting its annual and long-term commitments for research.

Exposures and Effect of Environmental Research

In 2005 Provide risk assessors and managers with methods and tools for measuring exposure and effects in children, and characterizing and reducing risks to children from environmental agents in schools so that, by 2014, EPA will be able to demonstrate why some groups of people, defined by life stage, genetic factors, and health status, are more vulnerable than others to adverse effects from exposure to environmental agents.

| | | | | |
|--|--------------------|-----------------------|-----------------------------------|---------------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. 09/30/05 | |
| Methods and tools for measuring exposure and effects in children, and characterizing and reducing risks to children from environmental agents in schools | | | | methods/tools |

Baseline: Current risk assessments for children are hampered by the lack of exposure and risk data and by a lack of methods that are appropriate for children. By FY 2004, EPA expects to have better data on children's exposures and on children's exposure factors. In FY 2005, research will build upon the improved data on children's exposures by compiling and analyzing the data, and translating the enhanced knowledge into better methods and approaches for measuring and estimating children's exposure and risk. The research in FY 2005 will culminate in initial approaches, ready for external peer review, on: how to conduct children's exposure and risk assessments; how to replace default uncertainty factors with data and distributions; and how to use biomarkers more appropriately in characterizing children's exposures. In addition, the increased understanding of children's exposures will provide evaluated methods for reducing their exposures and risks in schools and other indoor environments. These data, methods, and approaches will significantly improve the reliability, credibility, and transparency of children's risk assessments used by regulatory decision-makers throughout EPA and will provide to the public and to school and daycare officials tested methods to reduce children's exposures to chemical pollutants.

Beginning in FY 2005, regular evaluations by independent and external panels will provide reviews of EPA research programs' relevance, quality, and successful performance to date, in accordance with OMB's Investment Criteria for Research and Development. Reviewers will also qualitatively determine whether EPA has been successful in meeting its annual and long-term commitments for research. Recommendations and results from these reviews will improve the design and management of EPA research programs and help to measure their progress under the Government Performance and Results Act (GPRA).

Mercury Research

In 2005 Provide information on managing mercury and other co-pollutants from utility boilers so that, by 2010, there is an extensive set of data and tools available to help industry and federal, state, and local environmental management officials make decisions on the most cost-effective ways to reduce or prevent mercury releases into the environment.

| | | | | |
|--|--------------------|-----------------------|----------------------------|--------|
| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. 1 | |
| Information on managing mercury and other co-pollutants from utility boilers | | | | report |

Baseline: EPA's Mercury Study Report to Congress identified emissions from coal-fired utilities as one of the most significant contributors of mercury to the air (<http://www.epa.gov/oar/mercury.html>). On December 14, 2000, EPA determined that mercury emissions from coal-fired utilities needed to be regulated. Unless some form of multi-pollutant legislation for utility boilers is passed by Congress, a Maximum Achievable Control Technology standard (MACT) will be promulgated in December 2004 to control mercury emissions with full compliance of utilities expected by December 2007. There are a variety of technological options under development that could be used to more cost-effectively achieve any required mercury reduction. These control technologies need to be evaluated before utilities make decisions on how to comply. The state-of-the-science on emission controls for mercury will be advanced by investigating the factors that impact the species of mercury in coal-fired utilities flue gas and the performance of promising mercury control technologies. Results available by the end of FY 2005 will be documented and made available for use by utilities and other interested stakeholders.

Beginning in FY 2005, regular evaluations by independent and external panels will provide reviews of EPA research programs' relevance, quality, and successful performance to date, in accordance with OMB's Investment Criteria for Research and Development. These evaluations will include an examination of a program's design to determine the appropriateness of a program's short-, intermediate-, and long-term goals and its strategy for attaining these. Reviewers will also qualitatively determine whether EPA has been successful in meeting its annual and long-term commitments for research. Recommendations and results from these reviews will improve the design and management of EPA research programs and help to measure their progress under the Government Performance and Results Act (GPRA).

Homeland Security Research

In 2005 Provide tools, case studies, and technical guidance so that, by FY 2006, first responders and decision-makers will have the methods, guidance documents, and technologies to enhance safety and to mitigate adverse effects of the purposeful introduction of hazardous chemical or biological materials into the environment.

In 2004 Provide a database of EPA experts on topics of importance to assessing the health and ecological impacts of actions taken against homeland security that is available to key EPA staff and managers who might be called upon to rapidly assess the impacts of a significant terrorist event.

In 2004 Provide to building owners, facility managers, and others, methods, guidance documents, and technologies to enhance safety in large buildings and to mitigate adverse effects of the purposeful introduction of hazardous chemical or biological materials into indoor air.

In 2004 Verify two point-of-use drinking water technologies that treat intentionally introduced contaminants in drinking water supplies for application by commercial and residential users, water supply utilities, and public officials.

| Performance Measures: | FY 2003 Actuals | FY 2004 Pres. Bud. | FY 2005 Pres. Bud. | |
|--|--------------------|-----------------------|-----------------------|----------------|
| Verify two treatment technologies for application in buildings by commercial and residential users, utilities, and public officials to treat contaminants in drinking water supplies. | | 2 | | verifications |
| Prepare ETV evaluations on at least 5 new technologies for detection, containment, or decontamination of chemical/biological contaminants in buildings to help workers select safe alternatives. | | 5 | | verifications |
| Through SBIR awards, support as least three new technologies/methods to decontaminate HVAC systems in smaller commercial buildings or decontaminate valuable or irreplaceable materials. | | 3 | | techs/methods |
| Prepare technical guidance for building owners and facility managers on methods/strategies to minimize damage to buildings from intentional introduction of biological/chemical contaminants. | | 9/30/04 | | guidance |
| A restricted access database of EPA experts with knowledge, expertise, and experience for use by EPA to rapidly assess health and ecological impacts focused on safe buildings and water security. | | 1 | | database |
| Risk assessment toolbox to predict and reduce the consequences of chemical/biological attacks in U.S. cities. | | | 1 | toolbox |
| Technical guidance for water system owners and operators on methods/strategies for minimizing damage from intentional introduction of biological/chemical contaminants | | | 09/30/05 | tech. guidance |
| Water system-related case studies that provide a spectrum of contingency planning situations and responses, including one specifically focused on the National Capital area | | | 09/30/05 | case studies |

Baseline: EPA's homeland security research provides appropriate, effective, and rapid risk assessment guidelines and technologies to help decision-makers prepare for, detect, contain, and decontaminate building and water treatment systems against which chemical and/or biological attacks have been directed. The Agency intends to expand the state of the knowledge of potential threats, as well as its response capabilities, by assembling and evaluating private sector tools and capabilities so that preferred response approaches can be identified, promoted, and evaluated for future use by first responders, decision-makers, and the public. Examples of the types of products that will be available in FY 2005 include: sampling protocols, efficacy protocols, risk assessment tools, and threat scenario simulations. These products will enable first responders to better deal with threats to the public and the environment posed by the intentional release of toxic or infectious materials.

Beginning in FY 2005, regular evaluations by independent and external panels will provide reviews of EPA research programs' relevance, quality, and successful performance to date, in accordance with OMB's Investment Criteria for Research and Development. These evaluations will include an examination of a program's design to determine the appropriateness of a program's short-, intermediate-, and long-term goals and its strategy for attaining these. Reviewers will also qualitatively determine whether EPA has been successful in meeting its annual and long-term commitments for research. Recommendations and results from these reviews will improve the design and management of EPA research programs and help to measure their progress under the Government Performance and Results Act (GPRA).

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Performance Measure: Children's exposure data and tools for assessing aggregate exposure to residential-use pesticides

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Information on managing mercury and other co-pollutants from utility boilers

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Methods and tools for measuring exposure and effects in children, and characterizing and reducing risks to children from environmental agents in schools.

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Technical guidance for implementing and evaluating projects to restore riparian zones.

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Baseline ecological condition of Western streams determined.

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Complete 8 human health assessments and publish their results on the IRIS website

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Initiate or submit to external peer review human health assessments of 8 high priority chemicals

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Risk assessment toolbox to predict and reduce the consequences of chemical/biological attacks in U.S. cities.

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Technical guidance for water system owners and operators on methods/strategies for minimizing damage from intentional introduction of biological/chemical contaminants.

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A

FY 2005 Performance Measure: Water system-related case studies that provide a spectrum of contingency planning situations and responses, including one specifically focused on the National Capital area.

Performance Database: Program output; no internal tracking system

Data Source: N/A

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: N/A

Error Estimate: N/A

New/Improved Data or Systems: N/A

References: N/A